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LTCOL, USMC

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Globalization and the information age have created an environment in which small unit leaders have operational and strategic importance. The demands of the Irregular Warfare require small unit leaders within the General Purpose Forces to be more culturally aware; intellectually adaptable; seasoned in their decision-making requiring fundamental changes in the way they are educated, trained, and gain experience. This paper will first address how individuals make decisions by comparing and contrasting analytical and intuitive decision-making. Second, it will address the strengths and weaknesses in current training and educational paradigms via an analysis of the Systems Approach to Training. Third will be a proposal for the inclusion of new initiatives for developing small unit leader intuition and adaptability in IW. Following this are recommendations for inculcating critical thinking and decision-making skills in small unit leaders by adopting methods of instruction found in Outcomes Based Training and Education and Adaptive Leaders Methodology as well as the experiential based learning that immersive training environments provide.

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By

Christopher D. Gideons

Lieutenant Colonel, United States Marine Corps

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A paper submitted to the Faculty of the Joint Advanced Warfighting School in partial satisfaction of the requirements of a Master of Science Degree in Joint Campaign Planning and Strategy. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Joint Forces Staff College or the Department of Defense.

This paper is entirely my own work except as documented in footnotes. (or appropriate statement per the Academic Integrity Policy)

Signature: _____

25 April 2011

Thesis Adviser:

Signature: _____
COL Tom Snukis, USA (Ret)

Approved by:

Signature: _____
COL Barrett Peavie, USA

Signature: _____
Dr. Keith Dickson, PhD.

Signature: _____
Joanne M. Fish, CAPT, USN, Director,
Joint Advanced Warfighting School

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ABSTRACT

Globalization and the information age have created an operating environment in which small unit leaders have, and will continue to have, operational and strategic importance. Ultimately, the demands of the Irregular Warfare battlefield, and the hybrid forms of warfare that will evolve from it, require small unit leaders within the General Purpose Forces to be more culturally aware; intellectually adaptable; seasoned in their decision-making requiring fundamental changes in the way they are educated, trained, and gain experience.

This paper will first address how individuals make decisions and those elements most critical in developing sound decision makers by comparing and contrasting analytical and intuitive decision-making. Second, it will address the strengths and weaknesses in current training and educational paradigms for developing intuitive and adaptive small unit decision makers via an analysis of the Systems Approach to Training. Third will be a proposal for the expansion or inclusion of a number of new educational initiatives necessary for developing small unit leader intuition and adaptability in IW. These will include recommendations for expanded history, culture and language training and the inclusion of critical thinking skills, human profiling techniques, and methods for assessing complex problems. Following this will be recommendations on how best to instruct and inculcate critical thinking and decision-making skills in small unit leaders by adopting the more Socratic methods of instruction found in Outcomes Based Training and Education (OBTE) and Adaptive Leaders Methodology (ALM) as well as the experiential based learning that immersive training environments provide. The paper will conclude with specific recommendations for the joint force.

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CHAPTER 1: INTRODUCTION

Smart Power Weapons

At its basest level, war will forever remain chaotic and unpredictable. In defining the nature of war, the great military theorist, Carl Von Clausewitz used the image of two wrestlers locked in a hold. Each wrestler exerting moves and counter-moves in an effort to throw the other to help the reader visualize his description of war as a violent clash of wills between two hostile forces each trying to impose itself on the other. In describing this clash of wills, Clausewitz notes that war is a very human endeavor and thus will forever remain subject to the vagaries and complexities of human behavior complicating one's ability to discern an opponent's true intentions.[1] While the fundamental nature of warfare has remained constant, its conduct has not as history has shown that it is continually evolving.

A number of factors, both internal and external to the military, have contributed significantly to the conduct of warfare. External factors include politics, economics, society, and technology, while theory, doctrine, logistics, generalship, and professional military education have shaped the military internally.[2] One constant theme in this ongoing evolutionary process of warfare is the continued decentralization of combat power across the battlefield. From the massed phalanxes of the Greek Hoplites, to the skirmisher tactics employed in Napoleonic warfare, to German World War I Storm-troop tactics, to the modern day hunter-killer teams employed in Afghanistan during the

[1] Clausewitz, Carl Von, *On War*, ed. and trans. Peter Howard and Michael Paret (New York: Alfred A. Knopf, 1993), 83

[2] Dr. Bryon Greenwald, "Framework for Analyzing Military History-Threads of Continuity," lecture, Joint Advanced Warfighting School, Joint Forces Staff College, Norfolk, VA September, 2010, 1-3, cited with permission of Dr. Greenwald.

opening stages of Operation Enduring Freedom (OEF), units and individuals have continued to spread out and disperse across the battlefield. Spurred in large measure by the increased lethality of weapons systems and advances in command and control via technological innovation and supported by the increased professionalization of militaries, this dispersion and decentralization of combat power has resulted in the ever-increasing importance and impact the individual warfighter can have on the conduct and outcome of military operations.

To be successful in conflicts today requires the application of "smart power". Smart power is the skillful combination of both "hard" and "soft" power." Hard power is the ability to influence behavior via incentives, sanctions, or force and is generally equated with economic or military force. Conversely, soft power is the ability to influence people without coercion; it is tied to the legitimacy of one's cause and appeals to the values, interests, and preferences of others.[3] As defined by Richard Armitage and Joseph Nye, Co-Chairs of the Center for Strategic and International Studies (CSIS) Commission on Smart Power, "It is an approach that underscores the necessity of a strong military, but also invests heavily in alliances, partnerships and institutions at all levels to expand American influence and establish the legitimacy of American action."[4] While the concept of smart power is normally associated with actions at the geo-political level, the ever-shrinking battle space and overall inter-connectedness of the world today makes its application as equally relevant to the squad leader as it is to the statesman. To be effective across the range of military operations, smart power needs a weapon system

[3] Richard L. Armitage and Joseph S. Nye, JR., *CSIS Commission on Smart Power: A Smarter, More Secure America* (Washington, DC: Center for Strategic and International Studies, 2007), 6-7.

[4] Ibid, 7.

specifically designed to best employ it. Fortunately, for the United States, it already possesses the raw material necessary for producing such a weapon; its small unit combat leaders. What is required to mass-produce this smart power weapon is a fundamental change in the way the U.S. trains and educates its small unit combat leaders.

"Strategic Corporals and Captains"

As the United States assesses the current and future security environment, it is clear that it will continue to be influenced by expanding globalization, evolving demographics, escalating competition for resources, increasing transnational and non-state threats, emerging peer competitors, and advances in technology.[5] Expanding globalization, explosive population growth in under-developed regions and declining birthrates in developed countries, coupled with diminishing natural resources will create a real and perceived disparity between the "Have's" and Have Not" of the world. This disparity, made all the more visible by global mass media and escalating immigration will be exploited by non-state actors such as Al Qaeda and Hezbollah and rising regional peer competitors like Iran and China to undermine U.S. interests and security both abroad and at home. Continued advancement in technology and the ease with which networked information systems allow for the transmission of advanced research will make their efforts even more threatening. Technological advances and underground trafficking by near peer competitor nations and their radicalized non-state actor proxies will make weapons of mass destruction (WMD - nuclear, chemical, biological and radiological)

[5] Major Paul Oh, USA "Future Strategic Environment in an Era of Persistent Conflict" (draft article for discussion at the U.S. Military Academy Senior Conference, West Point, NY, 5-7 June 2008), 1, quoted in Russell D. Howard, *Educating Special Forces Junior Leaders for a Complex Security Environment (*Hulbert Field, FL: The Joint Special Operations Press, 2009), 4

ever easier for terrorist networks to acquire.[6] Figure 1 provides a graphic representation of the multiple security challenges that will confront the United States in the upcoming decades.

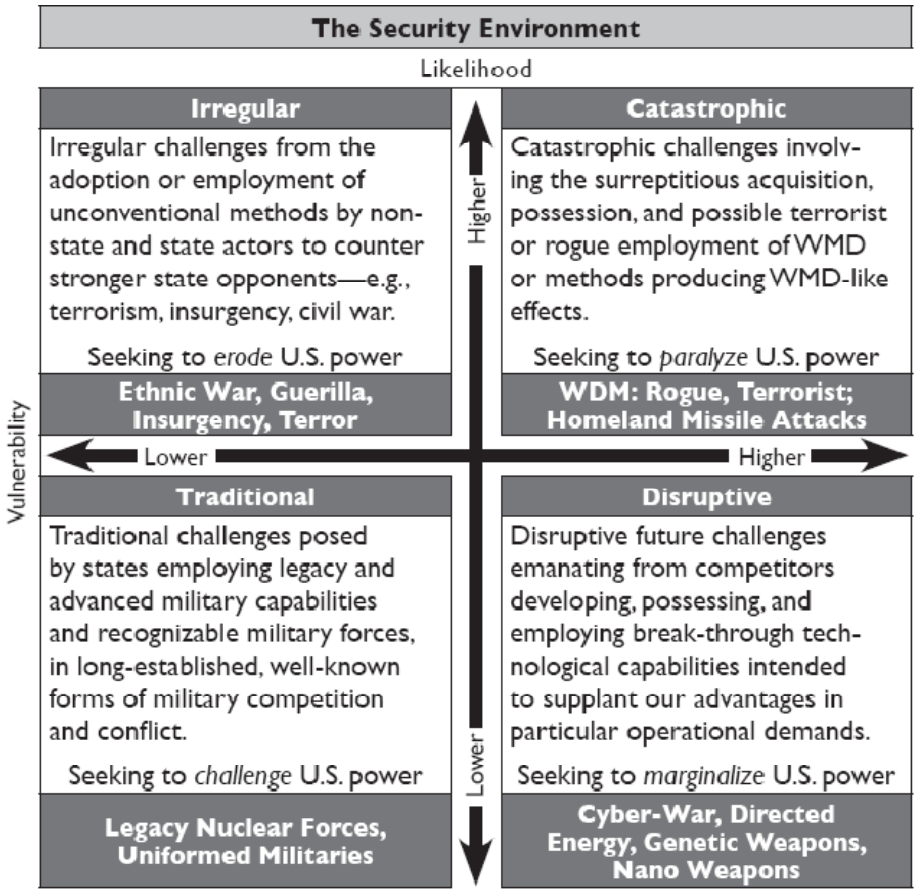

Figure 1: Security Environment Matrix

When assessing the future threats to the United States represented in the four quadrants of Figure 1[7], it should come as no surprise that Irregular Warfare (IW) has

[6] John Arquilla, David Ronfeldt, and Michele Zanini "Networks, Netwar, and Information-Age Terrorism:, in *Terrorism and Counterterrorism* (Naval Post-Graduate School, Monterey, CA, 1999), 134-157, quoted in Russel D. Howard *Educating Special Forces Junior Leaders for a Complex Security Environment (*Hulbert Field, FL: The Joint Special Operations Press, 2009), 9.

[7] Lieutenant Colonel Christopher P Gehler., *Agile Leaders, Agile Institutions:*

become the dominate method for overtly countering U.S. objectives and foreign policy goals. This is all the more clear when considering the United States conventional military dominance demonstrated in DESERT SHILED/DESERT STORM and the opening stages of OPERATION IRAQI FREEDOM transposed against its struggles in less traditional military operations in Somalia, and post 2003 Iraq and Afghanistan. The 2008 National Defense Strategy reinforced this idea by stating, "U.S. dominance in conventional warfare has given prospective adversaries, particularly non-state actors and their state sponsors' strong motivation to adopt asymmetric methods to counter our advantages. For this reason, we must display a mastery of irregular warfare comparable to that which we posses in conventional combat."[8] While it has made great strides in this endeavor, unfortunately, the U.S. still has great room for improvement in a number of areas before it masters, and thus dominates, the IW battlefield.

What has made the mastery of IW so challenging for the U.S. military is that formations destroyed, objectives seized, or enemy combatants killed is not the real measure of success. Rather, the influence gained over a population and their support for a cause or set of ideals is the true measure of success in IW. In his book *The Utility of Force,* Gen Sir Rupert Smith echoes this sentiment by describing future conflicts as "wars amongst the people", where the people themselves become the objective due to the importance of public opinion - domestically, internationally, and in the country of operation.[9] In a sense, the real battle in IW is focused on the 'wetware', that is the 'gray

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Educating and Adaptive and Innovative Leaders for Today and Tomorrow (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, August, 2005), 3. This diagram is one commonly used in the DoD and also appears in the United States Army *2006 Posture Statement*, 10 February 2006.

[8] U. S. Department of Defense, *National Defense Strategy* (Washington, DC: Government Printing Office, June 2008), 4

[9] General Sir Rupert Smith, *The Utility of Force* (NY: A. A. Knopf Publishing, ;2007), 5.

matter' of the brain in which opinions are formed and decisions made further cementing the idea that war is truly a human vice material endeavor.[10]

The rise of IW has significantly altered the nature of the operating environment for the vast majority of the U.S military, but especially for those ground based small unit leaders that operate at the squad through company level. While these small unit leaders will always need to be prepared to capture key pieces of terrain or destroy an enemy formation, they now play an increasingly critical role in influencing the opinions and "capturing" the will and support of the individuals, tribes, and peoples that form the human terrain of today's IW battlefield.

Further complicating the job of today's small unit leaders is the fact that they now operate on a "compressed" battlefield where the nexus of the tactical, operational, and strategic levels of warfare intersect much closer due largely to the decentralized nature of the modern battlefield and advances in information technology as previously discussed (See Figure 2) [11].

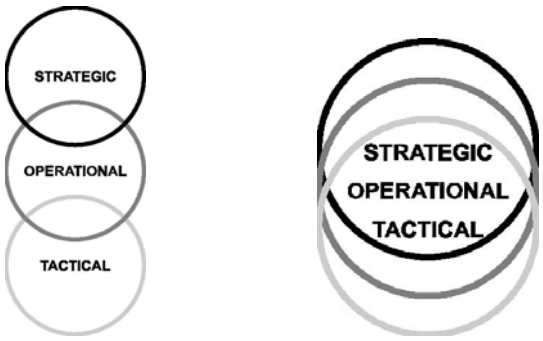


Figure 2: "Normal" and "Compressed" Levels of War

[10] Leigh Armistead, *Information Operations, Warfare and the Hard Reality of Soft Power* (Dulles, VA: Brassey's, 2004), 13.

[11] U.S. Marine Corps. *Warfighting*, Marine Corps Doctrinal Publication (MCDP) 1. (Washington, DC: U.S. Marine Corps, 20 June 1997), 37-39.

Some would argue that warfare has not "compressed" at all, but rather modern communications and rapidly expanded access to information have compressed response times for senior leaders and that tactics remain separate and distinct from operations and strategy. While this concept of "compression" may be debatable, it does not remove the fact that in IW tactical action can have immediate and lasting strategic consequence. [12]

This phenomenon is not new to small unit leaders in the special operations community where the mantra "all SOF actions are strategic" has existed for some time. However, over the past decade this concept has become more and more applicable to small unit leaders in the General Purpose Force (GPF). This has resulted in younger and less experienced leaders within the GPF having greater and greater responsibilities and capabilities thrust upon them. Capabilities and the responsibility for their use and outcome that once resided at the brigade and battalion level and employed by commanders in their early to mid 40s with 18 to 25 years of military experience and seasoning are now routinely employed by Non Commissioned Officers (NCOs, E-4 – E-5), junior Staff Non Commissioned Officers (SNCOs, E-6 – E-7) and junior officers (O-1 – O-3) who are in their mid to late 20's with only four to eight years of military experience and training. This has given rise to the often-used moniker of "Strategic Corporal" or "Strategic Captain" where these junior leaders are likely to find themselves in situations where poor tactical decisions can have significant strategic consequences, or a fleeting opportunity for positive strategic effect can go unrecognized and thus be lost.[13]

[12] Harry R. Yarger, *Educating for Strategic Thinking in the SOF Community: Considerations and Proposal* (Hulbert Field, FL: The Joint Special Operations Press, 2007), 11-13.

[13] Ibid, 13.

Educating and Training for Irregular Warfare

At the small unit level, the increase in tangible capabilities such as fires, intelligence, command and control, and low-level discretionary funding accounts coupled with intangible IW mission sets such as partner capacity building, tribal engagement, and influence operations can be regarded as positive. However, what is missing, and needed, is a corresponding increase in the experience, maturity, cultural awareness, decision-making and critical thinking skills of the small unit leaders tasked to employ these ever-expanding capabilities and accomplish these increasingly complex missions in the chaotic IW environment.

To truly maximize the capabilities that can now be leveraged at the squad, platoon, and company level and best prepare those small unit leaders for the IW mission sets they will be assigned and environs they will operate, the U.S. military must find better ways to enhance and increase those tangible and intangible skills necessary for GPF small unit leaders to succeed in IW.

Recent experiences in Iraq and Afghanistan have shown that success or failure of U.S. foreign policy objectives on the IW battlefield will in large part depend on the proficiency, professionalism, and savvy of its small unit leaders. Over the past decade multiple and disparate efforts and initiatives have been undertaken to better equip, train, and educate ground combat small unit leaders to succeed in the complex IW environment. Unfortunately, none of these efforts have resulted in a comprehensive training and education strategy designed to develop small unit leaders capable of making rapid, accurate, intuitive based decisions within the cultural context and relevance they are operating. Rather, the services continue to use a very formulaic, process driven

training methodology based on training tasks, conditions, and standards that were originally developed to produce large conscript armies. While serving as the Commander, U.S. Joint Forces Command General J. N. Mattis, USMC, recognized this during his testimony to the House Armed Services Committee in March 2009 stating, "A trained warrior may perform acceptably in a conventional operation, but irregular and hybrid wars demand highly-educated warriors to prevail. We must continually educate our leaders to think, and not just do."[14]

Clarity of thought and action is the product of appropriate education and well-balanced training reinforced by judgment and experience. The U.S. military's efforts in these endeavors are currently lacking. The chaotic and uncertain nature of warfare combined with the complexities of irregular warfare, as observed in OPERATION ENDURING FREEDOM and IRAQI FREEDOM, clearly indicates that the U.S. military requires refined education and training paradigms in order to produce intuitive and adaptive decision makers at the small unit level who know more about "how to think" rather than "what to do" or "how to respond." As stated in the Department of Defense's recently released strategic training plan, "The readiness of a balanced total force can only be achieved through a balanced approach to training. Training on foundational technical skills, tactics, techniques and procedures is crucial. *However,* mission specific skills such as combat hunting or training to hone cognition, adaptability, team cohesion, empathy,

[14] GEN James N. Mattis, USMC, *Statement Before the House Armed Services Committee*, (March 18, 2009), 19.

culture, and language are equally crucial…our training regimens must facilitate the development of an agile and adaptive force."[15]

Globalization and the information age have created an operating environment in which small unit leaders have, and will continue to have, operational and strategic importance. Ultimately, the demands of the IW battlefield, and the hybrid forms of warfare that will naturally evolve from it, require small unit leaders within the GPF to be more culturally aware; intellectually adaptable; seasoned in their decision-making requiring fundamental changes in the way they are educated, trained, and gain experience. The time is now for U.S. military to prepare them properly.

Specifically, this paper will first address how individuals make decisions and those elements most critical in developing sound decision makers by comparing and contrasting analytical and intuitive decision-making. Second, it will address the strengths and weaknesses in current training and educational paradigms for developing intuitive and adaptive small unit decision makers via an analysis of the Systems Approach to Training and current Infantry Squad Leader and Platoon Sergeant training programs. Third will be a proposal for the expansion or inclusion of a number of new educational initiatives that are necessary for developing small unit leader intuition and adaptability in IW. These will include recommendations for expanded history, culture and language training and the inclusion of critical thinking skills, human profiling techniques, and methods for assessing complex problems referred to as "sense-making". Following this will be recommendations on how best to instruct and inculcate critical thinking and

[15] Department of Defense, Office of the Under Secretary of Defense (P&R), *Strategic Plan for the Next Generation of Training for the Department of Defense (*September 23, 2010), 5.

decision-making skills in small unit leaders by adopting the more Socratic methods of instruction found in Outcomes Based Training and Education (OBTE) and Adaptive Leaders Methodology (ALM) as well as the experiential based learning that immersive training environments provide. The paper will conclude with specific recommendations for the joint force.

Other than the men and women under their charge, a commander's most valuable asset is time. Understanding this and taking into account the myriad of already pre-existing service directed training requirements as well as the compressed nature of current pre-deployment training timelines, it should be noted that the majority of the proposals and recommendations contained in this paper are intended to be implemented within the formal schools process and the curriculums of small unit leader development courses. It is here where the U.S. military can best produce the ultimate smart power weapon; a thinking and adaptive small unit combat leader.

CHAPTER 2: DECISION MAKING 101

What is Decision Making?

While at its heart war is a contest of wills, the conduct of war is largely driven by the decisions, or non-decisions, its contestants make. These decisions are influenced by a variety of internal and external factors and to ignore them would lead to decision-making in a vacuum where one's decisions are ineffective or inconsequential. At the small unit leader level a number of rudimentary decision-making devices and thought processes have been developed to aid the small unit leader in addressing all the variables he should or may have to consider. Many of these decision-making tools have taken the form of mnemonic devices designed to aid in the memorization and recall of these various considerations. For decades, acronyms like METT-TSL, BAMCIS, OKOCA, MOOSEMUS[1] and many other similar memory tools have served as the basis for small unit leader decision-making training and development. While these terms remain helpful in introducing junior leaders to the variety of variables that must be considered to reach a sound military decision, they fail as a result of their tendency to overly simplify or reduce military decision making to a series of process driven conditioned responses and rote actions. In decision-making, what is most important is not the haphazard application of pneumonic devises, but rather the application of one's experience, judgment and intuition in reaching sound and timely decisions.

[1] **METT-TSL** (Mission, Enemy, Terrain/Weather, Troops/Fire Support, Time, Space, Logisitcs), **BAMCIS** (Begin the planning, Arrange reconnaissance, Make reconnaissance, Complete the plan, Issue the order, Supervise), **OKOCA** (Observation, Key Terrain, Obstacles, Cover and Concealment, Avenues of Approach), **MOOSEMUS** (Mass, Objective, Offensive, Security, Economy of Force, Maneuver, Unity of Command, Surprise, Simplicity

As shall be shown in the following chapter, the U.S. military's current training model perpetuates this idea of decision making at the small unit level as a rote, conditioned process.

At its essence, military decision-making at any level is the continuous process of observing one's environment and applying training, education, experience, judgment and intuition in the evaluation of multiple factors to adopt a course of action that will achieve a desired result. U.S. Air Force Colonel John Boyd's Orient, Observe, Decide, and Act (OODA) Loop is a now common concept used to describe this decision-making process.[2] The basic concept behind Boyd's OODA Loop is the idea that whoever can execute this over-arching decision-making process more rapidly and effectively will gain a marked advantage because their opponent will constantly be reacting to the other's decisions. The expression commonly used to depict this process is "getting inside someone's (the enemy) loop." While usually depicted as a continuous loop as seen in Figure 3[3], it is more appropriate to consider the OODA loop as a way of thinking about conflict based on the premise of keeping one's orientations better matched to reality than your opponent.[4]

[2] OODA (Observe, Orient, Decide, Act) Loop was developed by Col John Boyd, USAF as a means for describing how individuals and organization make decisions. For a more detailed discussion, see Boyd's short essay *Destruction & Creation*, 1976.

[3] U.S. Marine Corps, *Command and Control*, Marine Corps Doctrinal Publication (MCDP) 6 (Washington, DC: U.S. Marine Corps, 20 June 1997), 64

[4] Donald E. Vandergriff, "When Do We Teach the Basics?", *Joint Forces Quarterly*, Issue 58, (3rd Qtr, 2010), 69

Figure 3: OODA Loop

As stated in the Marine Corps' foundational doctrine publication, *Warfighting*, "A military decision in not merely a mathematical computation. Decision-making requires both the situational awareness to recognize the essence of a given problem and the creative ability to devise a practical solution. These abilities are the products of experience, education, and intelligence."[5] It goes on further to state that at the small unit level "decision making may be an intuitive process based on experience." While at more senior levels, it may be a "more analytical process based on comparing several options."[6] Overall, this is not to say that one method is necessarily better than the other is, but that the situation confronting the decision-maker will influence the model chosen. In order to understand more fully the differences and similarities between these two decision-making models a more detailed analysis is required.

Analytical Decision Making

The heart of analytical decision making within the military can be found in the various services planning processes such as the U.S. Army's Military Decision Making Process (MDMP), the Marine Corps' Marine Corps Planning Process (MCPP), or the Joint Operational Planning Process (JOPP) used by the joint community. All very similar, each model is comprised of a basic six or seven step analytical and sequential

[5] Ibid, 86.
[6] Ibid.

process. As seen in Figure 4[7], upon receipt of a mission, the basic process commences with an analysis of the assigned mission and proceeds through the development of potential courses of action (COA). This is followed by a detailed analysis and wargaming or "what ifing" of those COAs and a comparison of the relative strengths and weaknesses of each COA. The process culminates with a final selection of the preferred COA and the development of a detailed plan or order for the selected COA. Ultimately, this process is designed to guide planners and decision makers in an orderly approach as they consider the variety of factors and variables necessary for developing plans and options suitable for accomplishing assigned missions or operations. [8]

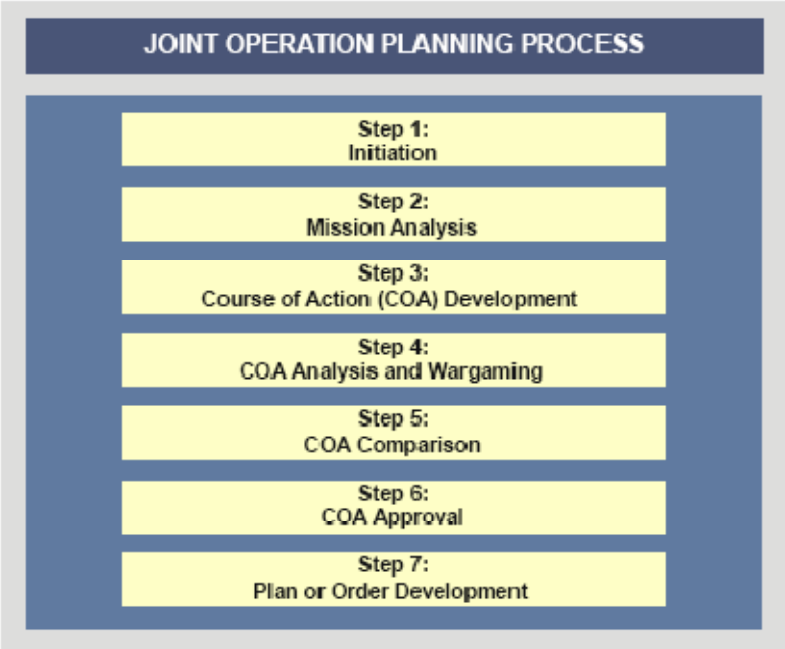


Figure 4: Joint Operation Planning Process

[7] U.S. Joint Chiefs of Staff. *Joint Operation Planning*, Joint Publication 5-0. (Washington, DC: U.S. Joint Chiefs of Staff, 26 December 2006), III-20.

[8] U.S. Joint Chiefs of Staff. *Joint Operations*, Joint Publication 3-0. (Washington, DC: U.S. Joint Chiefs of Staff, 17 September 2006), IV-2.

This deliberate approach to decision making has a number of inherent strengths that make it advantageous to military decision makers. First, is its ability to process all available information and present options with associated pros and cons for each. This processing of information leads to very logical plans that are easily justified and helps to minimize the likelihood of something being overlooked. As a systemic process, it lends itself to being easily taught and conforms to most military minds and cultures and with constant practice and honing can become reflexive and intuitive in its own right.[9]

Conversely, the analytical approach has a number of disadvantages as well; the primary one being the time it can take to work through the process and arrive at a decision. While this process can be accelerated through staff training exercises, standard operating procedures, clear commander's guidance, and predetermined response packages, it nonetheless lends itself towards being a time consuming and drawn out endeavor. Additionally, this process places a great demand on information in a desire to achieve a level of certainty. This can lead to unimaginative, inflexible, and predictable plans as planners and decision makers are sometimes loathe to incorporate late breaking or inconvenient factors as a result of "falling in love" with their plan. World War II's Operation Market Garden serves as a prime example as Allied planners failed to account for the late arrival of two German Panzer Divisions and adjust their plan accordingly. Ultimately, a strong adherence to this process based decision-making model can stifle creative thought and adaptability.[10]

[9] Brigadier G.L. Kerr, OBE, "Intuitive Decision-Making at the Operational Level of Command." *The British Army Review*, no.108 (December 1994), 6.

[10] Ibid.

Intuitive Decision Making

Not surprisingly intuitive decision-making originates from intuition. Reflexive in nature, intuitions are those heuristic "gut feelings" or "hunches" that allow a person to take an "intellectual short cut" in arriving at a conclusion or decision. The challenge is determining what factors go into creating that "hunch". Not to be confused with intellect, which is the ability to learn and reason, or instinct, those unlearned basic need patterns of behavior such as feeding, fighting, and reproducing, intuition originates from the subconscious part of the brain. Specifically, intuition has been described as "knowledge based on experience and acquired through sensory contact with the subject [environment], without the 'intuiter' being able to formulate to himself or others exactly how he came to his conclusions [decisions]."[11] What powers or fuels intuition is a conscious and subconscious mental database that has been developed through education, observation, training, and practical experience and is now being referred to in scientific communities as Recognition Primed Decision-making (RPD).[12]

The concept of intuitive military decision-making, especially at the small unit level, can be traced back to the concept of *coup d'oeil* or "strike of the eye." Its origins emanated from a tactical commander's ability to assess a situation with his own eyes, taking into account a number of variables such as time and space, and determining exactly the right location or moment to attack. As warfare progressed and battlefields expanded in scope and size, the term came to signify the ability for senior commanders to use their" inner eye" to assess complex situations and determine the correct course of

[11] Eric Berne, "The Nature of Intuition", *Psychiatric Quarterly*. XXIII, (1949), 205.

[12] Karol G. Ross, et al, "The Recognition Primed Decision Model," *Military Review*, (July-August 2004), 6-10

action. As a concept, Clausewitz stated,"…[it] merely refers to the quick recognition of a truth that the mind would ordinarily miss or would perceive only after long study and reflection."[13] From the translation of its very meaning and coupled with Clausewitz's description, it becomes quite evident that intuition is an integral part of the *coup d'oeil* concept.

With this in mind, the intuitive decision making process has a number of advantages. The first, and most obvious, is that the use of intuition can dramatically increase the speed at which decisions are made thus increasing a unit's operational tempo and ability to operate inside an adversaries OODA loop. This is crucial for success and survivability at the small unit level. As a product of intellectual creativity and subconscious thought, intuitive plans have a greater chance of being original and less predictable creating greater opportunities for surprise and deception than their analytical counterparts are. A reliance on intuition also requires its practitioners to be very observant and perceptive of both their physical and human environments. In an IW setting, this perceptiveness is crucial in supporting a small unit leader's ability to anticipate enemy actions or discern the intentions of a tribal elder. Intuitive decision making also places a premium on the ability to envision actions in time and space and how they should be aligned. The ability to rapidly assess these factors and align them against the myriad of factors and considerations the pneumonic devices previously discussed again aides in accelerated decision-making and increased operational tempo. Lastly, a secondary benefit of intuitive decision making is that it can enhance a leader's ability to assess subordinate strengths and weaknesses and correspondingly boost his own

[13] Clausewtiz, *On War*, 118.

standing in the eyes of subordinates as their confidence grows knowing they are being lead by someone who has a "feel for the right thing to do."[14]

Those critical of the intuitive decision making process will point out its apparent unreliability; its perceived susceptibility to be compromised by fatigue, fear, stress, and pressures associated with combat as well as perceptions that it can be deluded by prejudice, wishful thinking and ego. Ultimately, most criticism of intuitive decision making emanate from the fact that it does not comport well with main stream military culture and thought in that it "smacks of intellectual idleness and lacks the justification of rigorous analysis."[15] In the end, many leaders are reluctant to run the risk of trying to justify a decision gone wrong based on "get feel" especially when those decisions may put people's lives at risk.

In his British Army Review article *Intuitive Decision-Making at the Operational Level of Command*, Brigadier G.L. Kerr asserts that in assessing the analytical and the intuitive process, the intuitive is ultimately the stronger of the two. This is based primarily on the speed at which decisions can be made; its reliance on the creative and imaginative parts of the brain in support of originality and surprise; and its potential for supporting spatial thought.[16] While intuition provides no guarantees and is susceptible to distortion as previously stated, the same lack of guarantees and distortion can be attributed to the analytical approach as well due to its reliance on precise and accurate information and trend towards repetitive, unimaginative responses. With this in mind and taking into account the frenetic and time compressed nature that small unit operations

[14] Kerr, "Intuitive Decision-Making at the Operational Level of Command", 6-7.
[15] Ibid, 7.
[16] Ibid.

normally operate, it is readily apparent that intuitive decision-making should be the primary method by which small unit leaders decide and act. With this said, it does not mean that the analytical approach to decision making should be forgotten or avoided as it provides a starting point for assessing complex and continually evolving problems, which is the nature of IW. Rather, as time allows the analytical approach should complement the intuitive as each process can enhance the other. As stated by Eric Berne years ago in the *Psychiatric Quarterly*, "…there is a time for scientific methods and a time for intuition – the one brings with it more certainty, the other offers more possibilities; the two together are the only basis for creative thinking."[17]

In the end, it is clear that intuitive decision-making is preferred at the small unit level. To inculcate these skills in small unit leaders the basic steps are also clear. First, a sound education and experience database must be established. Second, learning environments must be structured so that students understand how they naturally process information and make decisions. Third, it is essential that intuitive decision-making techniques be practiced and employed in both training and real world operations. Ultimately, it is only through its application that the significant benefits of intuition can be realized. As will be seen in the next chapter, the U.S. military's current training methods are ill designed to develop and inculcate intuitive decision making in today's small unit leaders necessitating required changes.

[17] Berne, "The Nature of Intuition", 224.

CHAPTER 3: CURRENT TRAINING & EDUCATION PARADIGMS

Systems Approach to Training

The Systems Approach to Training (SAT) is the current training paradigm utilized by the U.S. military for individual and unit level training and serves as the U.S. military's effort to create a standards based training program that can be easily understood, implemented, and resourced. It based upon the Competency Theory of Learning, which stresses the hierarchical mastery of specific tasks, skills, and concepts, and is a product of the industrial age process oriented outlook that governed the way the U.S. military prepared for war. Evaluating the state of training and readiness in the U.S. military immediately following its pull out from Vietnam, it was quite apparent to senior leaders that the military's overall readiness level was quite poor. A number of factors contributed to this such as the degraded state of its equipment, racial divisiveness within the ranks, and an overall lack of morale and esprit that emanated from a largely conscript army that was poorly trained and led. In a concerted effort to reform itself, the U. S. military made a number of dramatic and decisive decisions to pull itself out of its post-Vietnam malaise and refocus its attention on deterring conventional threats, most notably the Soviet Union. The most far reaching of these was the decision to transition to a an All-Volunteer force that placed a heavy reliance on skilled and well trained NCOs and enlisted personnel. These decisions precipitated the establishment of the U.S. Army's Training and Doctrine Command (TRADOC) and its development of the Army Training and Evaluation Program (ARTEP) whose mission was to improve the training and evaluation of training in individual soldiers and combat units. As TRADOC stood up

what was missing was a standardized method for developing, implementing and evaluating formal and informal training throughout the Army.[1]

Originally developed in 1975 in collaboration with the Center for Educational Technology at Florida State University as part of the Inter-service Procedures for Instructional Systems Development program, SATs was initially titled the Instructional Systems Development (ISD) model. ISD's stated mission was to determine instructional needs and priorities, develop effective and efficient solutions to achieving those needs, implement those solutions in a competent manner, and assess the degrees to which the output of the system met the specified needs. Ultimately, this model became the recognized standard governing the instructional process within the Department of Defense providing approved techniques and procedures for the development of all inter-service training and education and remains the accepted standard today.[2]

The SAT process, as seen in Figure 5[3], is a cyclical five-step process designed to develop instruction that is effective in teaching learning objectives that are based on job performance requirements and efficient in the use of resources and time. The five steps of the SAT process are Analyze, Design, Develop, Implement, and Evaluate. The intent of the SAT process is to provide commanders and trainers with a flexible and adaptable

[1] Anthony H. Cordesman and Abraham R. Wagner, *The Lessons of Modern War, Vol IV, The Gulf War* (Boulder, CO: Westview Press, 1996), 149-151.

[2] U.S. Marine Corps, *Systems Approach to Training (SAT) Manual* (Quantico, VA. U.S. Marine Corps, 4 June 2004), Forward.

[3] U.S. Marine Corps. *Unit Training Management*, Marine Corps Reference Publication (MCRP) 3-0A. (Quantico, VA: U.S. Marine Corps, 25 November 1996), 3-2.

model for developing and implementing standards based training that is both effective and efficient.[4]

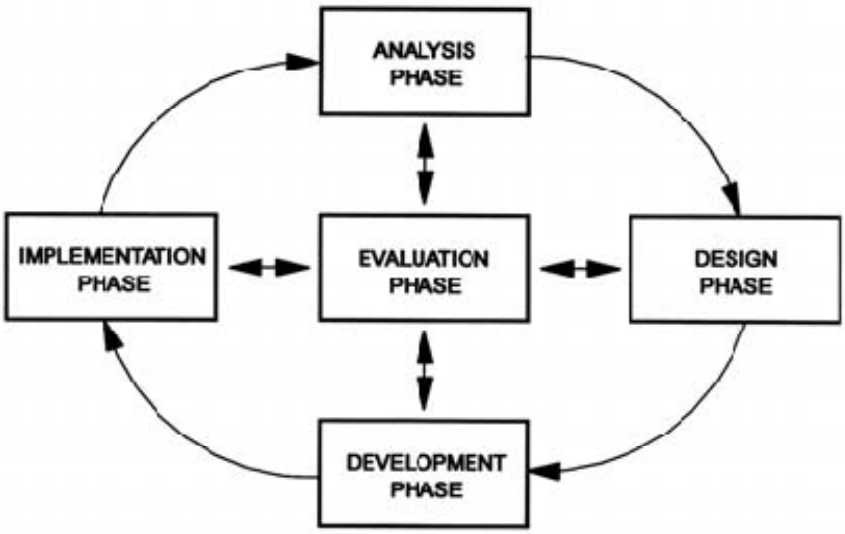


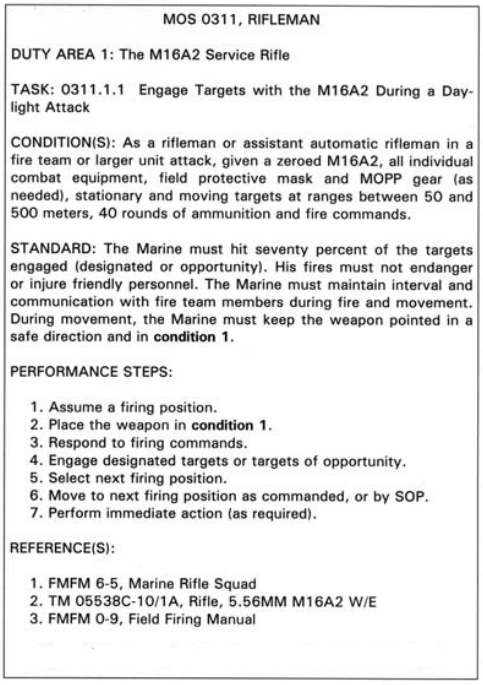
Figure 5: SAT Process

The purpose of the Analysis phase is to determine what specific skill sets a particular Military Occupational Specialty (MOS) requires, the order in which they are to be performed, and the standard of performance needed. From this analysis a set of Individual Training Standards (ITS) are developed that define the specific job performance and serve as the basis for all instruction in that particular field. These ITSs are further refined into specific task statements, conditions, standards, performance steps, administrative instructions, and references necessary for the training and evaluation of each specific job function.[5]

The critical components of any ITS are the specific task, the conditions, the standards, and performance steps. The task statement, commonly referred to as the "task", describes the exact job or mission that must be done or accomplished. Conditions

[4] U.S. Marine Corps, *SAT Manual,* ii.
[5] Ibid, iv.

define the real-world circumstances under which the task must be performed. Specifically, the conditions detail the equipment, available resources, location, assistance, and environmental setting (day, night, etc) the task must be performed under. Standards are the metric for evaluating the effectiveness of the event and describe how well the task must be performed. Stated as a level of proficiency in terms of completeness, time, and accuracy, standards measure a product, a process, or a combination of both. Performance Steps provide a sequential and logical process, or actions, needed to accomplish a task. Supporting the tasks, conditions, standards, and performance steps are the various doctrinal publications, technical manuals, field manuals, and orders found in the ITS reference section. The references provide the basis and justification for the development of the individual conditions and standards for a specific task.[6] Figure 6[7] is an example.



MOS 0311, RIFLEMAN

DUTY AREA 1: The M16A2 Service Rifle

TASK: 0311.1.1 Engage Targets with the M16A2 During a Daylight Attack

CONDITION(S): As a rifleman or assistant automatic rifleman in a fire team or larger unit attack, given a zeroed M16A2, all individual combat equipment, field protective mask and MOPP gear (as needed), stationary and moving targets at ranges between 50 and 500 meters, 40 rounds of ammunition and fire commands.

STANDARD: The Marine must hit seventy percent of the targets engaged (designated or opportunity). His fires must not endanger or injure friendly personnel. The Marine must maintain interval and communication with fire team members during fire and movement. During movement, the Marine must keep the weapon pointed in a safe direction and in **condition 1**.

PERFORMANCE STEPS:

1. Assume a firing position.
2. Place the weapon in **condition 1**.
3. Respond to firing commands.
4. Engage designated targets or targets of opportunity.
5. Select next firing position.
6. Move to next firing position as commanded, or by SOP.
7. Perform immediate action (as required).

REFERENCE(S):

1. FMFM 6-5, Marine Rifle Squad
2. TM 05538C-10/1A, Rifle, 5.56MM M16A2 W/E
3. FMFM 0-9, Field Firing Manual

Figure 6: ITS Example

[6] Ibid,1-7 to 1-8.
[7] U.S. Marine Corps, *Unit Training Management*, 4-4.

The intent of the Design Phase in the SAT process is to replicate as closely as possible real-world job conditions within the instructional setting in order to better facilitate the student's execution of those skills once they enter the work environment. This requires curriculum developers to define the training audience, develop learning objectives and associated testing methods, select the means by which the instruction will be presented, and develop the logical sequence the material will be instructed.[8]

The Development Phase builds upon the tasks and standards of performance identified in the Analyze Phase and the logical method of instruction found in the Design Phase. It does this by developing the specific course schedule, and actual course material, lesson plans, and media that will be presented to the students. After these products are validated for their instructional quality and effectiveness, a formal Program of Instruction is put together providing a detailed description of the course's structure, delivery system, length, learning objectives, and evaluation procedures.[9]

The Implementation Phase entails the efficient and effective delivery of the instructional material to the student in order to best prepare them for service in their job. While this is a relatively straightforward process, its success in large measure depends on the instructor's overall preparedness, understanding of the material, and ability to present the material in a way that promotes student understanding and retention.[10]

As with most systemic models, the intent of the Evaluate Phase is to measure the overall effectiveness and efficiency of a particular program of instruction, identify shortfalls or areas for improvement, and implement necessary changes. While evaluation

[8] U.S. Marine Corps, *SAT Manual*, v.
[9] Ibid, vi – vii.
[10] Ibid, viii.

should be continuous throughout the entire SAT process, particular areas to be analyzed include student performance, instructor performance, the instructional environment, and course materials.[11]

Strengths and Weaknesses

The strengths of the SAT model as it relates to small unit leader development is the specificity and detail the model provides trainers and trainees. The heart of the SAT process is the development of the ITS's and associated tasks, conditions, standards and performance steps which provides the basis for all further training development and implementation. When viewed in relation to a mission statement, the strengths of the ITS model are clear as well as its fundamental weaknesses.

In military doctrine, a mission statement is comprised of two basic parts, a task and a purpose, and is designed to answer five fundamental questions of who, what, when, where, and why. The task segment of a mission statement defines what specifically is to be accomplished, who is to accomplish it, when it is to be accomplished and where the action should occur. The specific task is usually stated as an action verb that has a doctrinally recognized and understood meaning. Tasks such as "clear", "secure", or "destroy" inform leaders on specifically what they are to accomplish. While these tasks statements garner much attention by those assigned them, it is the purpose of the task that is the most important as it provides insight as to why the task is to be accomplished in the first place. This is especially crucial in combat as the overall situation may change rapidly negating the necessity or ability to accomplish the assigned task. When this

[11] Ibid, vii.

occurs, the purpose, or "why", for the now obsolete task serves as guidance and intent allowing leaders to develop new and more appropriate tasks utilizing their own initiative, creativity and decision-making skills.[12]

In comparison, ITS tasks describe "who" will execute the task and "what" is to be accomplished. The conditions describe "where" and "when" the task will be accomplished. The performance steps and the standards describe the "how" and "how well" the task will be performed respectively which has its own hidden dangers as the designated standards describe the minimum acceptable level of performance for a particular task. When compared with a mission statement, what is missing in this ITS construct is the most important element of "why" the task is to be accomplished in the first place. The "why" provides the overall purpose of the task, which serves as the fundamental basis for all decision making. Additionally, the prescriptive nature of the performance steps promotes the idea that task accomplishment is nothing more than executing a prescribe number of actions in a set sequence. While this is appropriate for a variety of individual actions involving the employment or operation of weapons and equipment, it can stifle creative thinking and adaptive decision making, especially in the execution of collective unit tasks, as leaders are required or feel compelled to "mark the box" in the performance steps checklist.

Key Failure

In the development of small units and small unit leaders at the company level and below, one of the key objectives is to develop units and leaders who are proficient at the tactics, techniques, and procedures of their given occupational specialty. Commonly

[12] U.S. Marine Corps, *Warfighting*, 89.

referred to as TTP's, these tactics, techniques, and procedures form the fundamental building blocks for all individual and unit actions. In viewing this trio of training building blocks in reverse order, procedures are those detailed steps that describe how to perform a specific task. Techniques are those prescriptive and non-prescriptive ways or methods used to perform specific tasks, functions or missions. Tactics are the ordered arrangement and employment of forces in relation to each other.[13]

In layman's terms, procedures are those step by step, sequential steps individuals execute to accomplish an assigned task. Examples would include clearing a jam or malfunction of a machine gun, sending a call for fire, or loading the main gun of a battle tank. Techniques build upon and combine various procedures to accomplish specific functions or missions and normally are executed as a collective task by a small unit. Examples here might include the employment of a machine gun section to deliver flanking enfilade fire upon an enemy formation or the sequencing of direct and indirect fires in support of a suppression of enemy air defense (SEAD) mission. While defined in joint doctrine as an "ordered arrangement and employment of forces", tactics ultimately are the use of combat power to defeat the enemy in engagements and battles.[14] Tactics can be viewed as both an art and science. The techniques and procedures of marksmanship, navigation, gunnery, and close air support supports the science of tactics. These actions must become conditioned and second nature in combat. The art of tactics lies in a leader's ability to assesses his situation and creatively employ his unit to

[13] U.S. Joint Chiefs of Staff. *DOD Dictionary of Military and Associated Terms*. Joint Publication 1-02. (Washington, DC: U.S. Joint Chiefs of Staff, 08 November 2010, as amended through 31 December 2010), 293, 361, 366.

[14] U.S. Marine Corps, *Tactics*, Marine Corps Doctrinal Publication (MCDP) 1-3. (Washington, DC: U.S. Marine Corps, 30 July 1997), 3.

accomplish his assigned mission. His ability to be creative and make the correct decisions is a product of his training, education, experience and judgment. If viewed as a carpenter, a small unit leader's tools would be his techniques and procedures. The way in which he used those tools would represent his tactics. The current SATs training model does an exceptional job developing the technical and procedural "tools" for small unit leader use. Where it is lacking is in developing the judgment and decision making skills necessary to tactically employ the right tools for the assigned job. As stated by former U.S. Marine Corps Commandant, GEN A. M. Gray, "In tactics, the most important thing is not whether you go left or right, but why you go left or right."[15]

If one where to look at the current program of instruction for the Marine Corps' Infantry Unit Leader Course (IULC), it is quite evident that this focus on technical and procedural competence at the expense of tactical decision making is alive and well. IULC is a 12-week course designed to train and develop Marine Corps Staff Sergeants (E-6) to serve as infantry platoon sergeants. Capable of training 52 students per class, the course provides training and education in machineguns and machinegun gunnery; mortars and mortar gunnery; anti-armor weapons and anti-armor operations; Marine Corps leadership; Marine Corps planning process; law of land warfare; anti-terrorism force protection; written communications; verbal communications; military justice; personnel administration; platoon/company defensive tactics; platoon/company offensive tactics; platoon patrolling; small unit training; and fire support.[16] Comprised of over 650 instructional hours, the course dedicates just 32 hours, or 4.8% instructional time,

[15] U.S. Marine Corps, *Tactics*, 1.

[16] U.S. Marine Corps, *Infantry Unit Leader Course - Program of Instruction*, (Quantico, VA: U.S. Marine Corps, 5 February 2009), iii.

specifically to decision-making or military planning related topics.[17] The precursor to IULC, the Infantry Squad Leader Course (ISLC), provides a Marine Sergeant (E-5) with the knowledge and skills required of an infantry squad leader. Similarly capable of training 52 Marines per class, ISLC students receive training in train the trainer (small unit training management), troop leading procedures, communications, combat hunter skills (profiling and tracking techniques), weapons and munitions, patrolling, offensive and defensive tactics, and urban operations.[18] Upon completion of this course, a Marine is capable of performing as a rifle squad leader in an infantry rifle platoon. Similar to IULC, ISLC only allocates 56 of its 583 total instructional hours (9.6%) to decision-making or military planning.[19] While both courses do have extensive hours dedicated to practical application and field exercises, the large class sizes preclude students from having many opportunities to serve in leadership billets where they can practice and exercise their individual decision-making and judgment.

These two examples clearly demonstrate an inordinate focus on the technical and procedural development of small unit leaders at the expense of developing their thinking, judgment, and decision-making skills. These two Programs of Instructions exemplify competency-based courses that are nothing more than an exhaustive task list of training standards. This only encourages further the "check list mentality" in which the meaning of completing one training task is the justification to move on to the next and focuses more on measuring the execution of the methods employed vice whether learning

[17]Ibid, IV-41 to IV-42.
[18]Ibid, pg iii.
[19]Ibid, IV-27 to IV-30.

actually occurred.[20] While this current training model has served the military quite well in developing highly trained, procedurally efficient small unit leaders competent in facing conventional, template-able threats, it is failing to provide the necessary educational base and experiential training opportunities required for small unit leaders to develop and hone their decision making skills in complex and chaotic settings.

[20] McDaniel, W.R., *Outcome-Based Training and Education (OBTE) Integration Workshop-Final Report* (Prepared for the U.S. Army's Asymmetric Warfare Group. Baltimore, MD: The Johns Hopkins University Applied Physics Laboratory, May 2009), 3-5.

CHAPTER 4: NEEDED EDUCATIONAL INITIATIVES

Context and Relevance for Irregular Warfare

As discussed previously, much of how a person processes information and makes decisions is based upon their knowledge and understanding of a particular problem or situation. In order to develop efficient intuitive small unit decision makers capable of thriving in IW they must be provided with an educational database that allows them to view their environment and situation in the correct context and relevance. Context is the background, environment, framework, setting, or situation surrounding an event or occurrence. Relevance is the relationship of something to the present situation.[1] Since context and relevance provide an understanding of the circumstances in which an event occur and that event's overall significance to a given situation, they are hugely important to successful operations in an IW setting where small unit leaders may have little to no previous understanding of the history, cultural, or socio-economic issues effecting a given country, province, or village. Therefore, it is crucial that the education and training provided to small unit leaders be tailored appropriately to enable them to make informed and relevant decisions.

With this in mind and taking into account the increasingly complex and interconnected nature of current and future battlefields, small unit leaders must first be provided a conceptual framework for assessing complex problems. The Cynefin (*kin-e-fin)* model of "Sense-making", based on C.F. Kurtz and D.J. Snowden's research,

[1]U.S. Marine Corps. *Combat Hunter*, Marine Corps Interim Publication (MCIP) 3-11.01.(Washington, DC: U.S. Marine Corps, 4 February 2011), 30.

provides such a framework and will be discussed in some detail. Armed with a framework for understanding complexity, small unit leaders' critical thinking skills require development as well in order to allow them to better question and assess the relevance of events occurring around them and how their own decisions might effect a given situation. The elements of reasoning found in the Paul Model provide a guide and a basis for instruction. Building upon the premise that context and relevance are crucial to effective intuitive decision-making and in keeping with the recommendations made by General Mattis in his March 2009 testimony before the House Armed Services Committee as the Commander, U.S. Joint Forces Command, greater emphasis on the study of history, culture, and language for a given region or country is required.[2] Concurrent with this and taking into account that the decisive terrain in IW is the "human terrain", techniques for observing, profiling, and tracking human behavior patterns are also a must.

"Sense-Making" in Irregular Warfare

In an age of ever-increasing complexity and ambiguity, it is necessary that small unit leaders are provided a conceptual framework for assessing complex problems. The Cynefin model of "Sense-making" provides such a framework. The Cynefin framework is based on several years of research by C.F. Kurtz and D.J. Snowden into the use of complexity theory in organizational knowledge exchange, decision-making, strategy, and policy making. Cynefin is a Welsh word whose literal meaning in English is "habitat" or "place". However, in the context of the Cynefin framework its meaning has more to do with the sense that we all have many roots, individually and collectively, be they cultural,

[2] Mattis, *Statement Before the House Armed Services Committee*, 19.

religious, geographic, or tribal to name a few. As described by its originators, "The name seeks to remind us that all human interactions are strongly influenced and frequently determined by the patterns of our multiple experiences, both through the direct influence of personal experience and through collective experience expressed as stories."[3]

Kutz and Snowden go on to describe Cynefin as a "sense-making" framework; meaning that its value is not so much in logical arguments, but more in its effect on the sense-making and decision-making capabilities of those who use it. They feel it can give decision-makers new constructs they can use to make sense of a wide range of unspecified problems by helping them to break out of old ways of thinking and to consider complex and unregulated problems in new ways. As will be seen, the Cynefin framework is not a categorization tool. Rather, it is a framework that can be used to consider the dynamics of situations, decisions, perspectives, conflicts, and changes in order to arrive at a consensus or decision for those decision-makers dealing with uncertainty.[4] It does this by calling into question three basic assumptions that underpin the practice and theory of decision-making and organizational policy making. These three assumptions are the assumption of order, rational choice, and intentional capability.[5]

The assumption of order contends that an understanding of the linkages in past behavior allows one to identify "best practices" for future behavior; implying that there must be a right way of doing things. The assumption of rational choice implies that when

[3] C. F. Kurtz and D. J. Snowden, "The New Dynamics of Strategy: Sense-Making in a Complex and Complicated World." *IBM Systems Journal*, 42, no. 3 (2003): 462-467.
[4] Ibid, 468.
[5] Ibid, 462-463.

faced with a choice, people will make a rational decision based on minimizing pain or maximizing pleasure; further implying that people can be managed or manipulated via "carrot" or "stick" stimuli. The assumption of intentional capability contends that a competitor or rivals acquisition of a capability is a clear indication of their intent to use that capability and their actions are the result of intentional behavior. In essence, people freely accept that they do things by accident, but assume that others do things deliberately. While these assumptions are valid in a number of situations, they are not universal truths as all three fly in the face of human free will and the undeniable fallibility of man. With the ever-increasing complexity of networks, systems, and systems of systems that globalization and advanced technology have created, the Cynefin model is designed to give decision-makers a tool in dealing with situations and environments where these assumptions are invalid. [6] It is the Cynefin model's ability to assist in dealing with uncertainty in planning and execution that makes the model relevant to the military decision-maker at both the small and large unit level and thus of great value to both in IW.

The Cynefin model is based upon the concept of ordered and unordered domains. The ordered domain is based upon the long held belief that ultimately all systems are ordered and can be understood and manipulated once the cause and effect relationships pertaining to that system are identified. Much like a business model, ordered systems thinking assumes that through the study of physical conditions we can discover general rules that can be verified creating reliable knowledge which can be developed , expanded and utilized. When viewed as a machine, ordered thinking contends that the whole is the

[6] Ibid, 462-463.

sum of the parts and optimized performance can be gained simply by optimizing the individual parts.[7]

Conversely, in the domain of un-order, the whole is never the sum of the parts. Citing Bram Stoker's use of the word "undead" to describe something as neither dead nor alive but something similar to both and different from both to help illustrate their idea of un-order versus order, Kurtz and Snowden define un-order not as the lack of order, but rather as "a different kind of order, one not often considered but just as legitimate in its own way…connoting two things that are different but in another sense the same." [8] In simplest terms, un-order is a state of being within a system that can be understood but not controlled. While it is useful to artificially separate order and un-order to better understand the different dynamics involved, it is unrealistic to expect to find one without the other in real life.

[7] Ibid, 464-466.
[8] Ibid, 465-466.

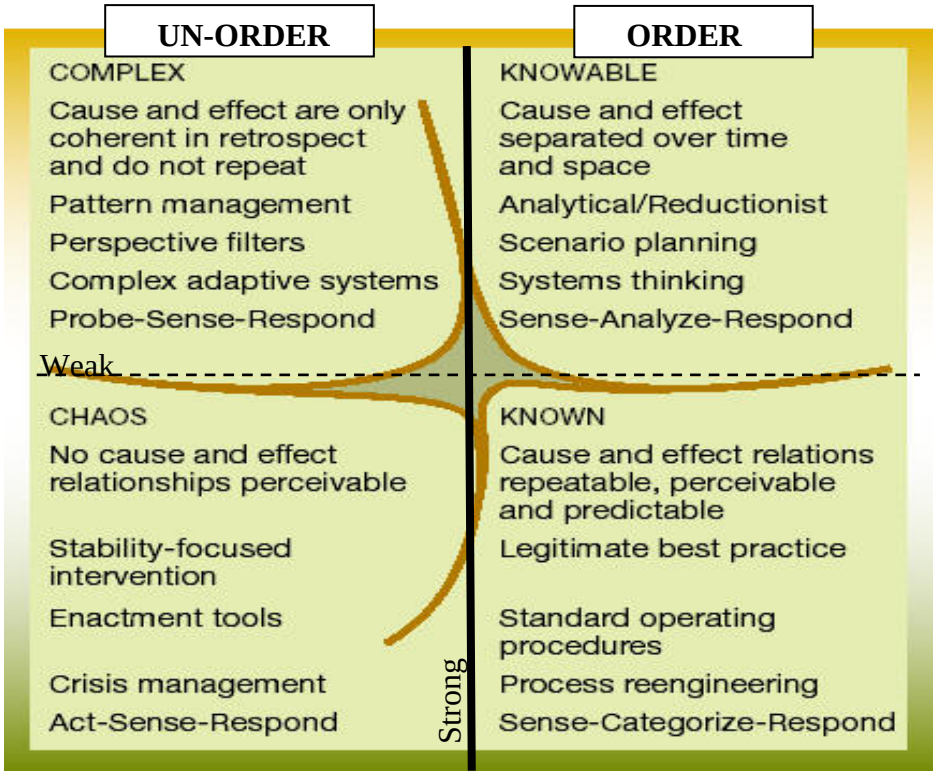


Figure 7: Cynefin Model

As seen in Figure 7[9] above, the Cynefin model is made up of four primary domains, with the ordered domains being those on the right and the un-ordered domains being those on the left.

The Known domain is the one most common and most comfortable to individuals and organizations. In this domain, cause and effect relationships are easily identifiable, generally repeatable and predictable, and not open to dispute. It is here where field manuals, best practices and standard operating procedures work best. The decision making model in the Known domain is to "sense-categorize-respond"; meaning sense incoming data, categorize that data and then respond in accordance with predetermined

[9] Ibid, 468.

practices and actions.[10] From a military perspective, the Known domain is comprised of the tactics, techniques, and procedures developed through individual and unit training, education, and experience. It is here where the task/condition/standard based training methods of the Systems Approach to Training are most appropriate and suitable.

In the Knowable domain, cause and effect relationships exist, but they may not be fully known or understood by the group or organization confronted with them. However, everything in this domain is capable of movement to the Known domain given the appropriate expertise or subject matter experts can be identified and sufficient time and resources are available. In this domain, organizational learning and adaptability are key as well as the willingness for leaders and organizations to admit they do not have all the answers. This creates a need for expert opinion, and most importantly trust, between the expert advisor and the decision maker. In the Knowable domain, experiment, expert opinion, fact-finding, and scenario planning are appropriate means to identify reliable cause and effect relationships allowing response actions to migrate to the Known domain. The decision making model here is to "sense-analyze-respond"; meaning sense incoming data, analyze that data and then respond in accordance with expert advice or interpretation of that analysis.[11] Militarily, having an understanding of the Knowable domain can assist decision makers by highlighting those areas or functions where individual or institutional knowledge is lacking. Examples might include the need to access planning expertise in a particular warfighting function or assistance from an inter-agency partner when confronted with a situation requiring a whole of government

[10] Ibid.
[11] Ibid.

response. Additionally, the process of wargaming or "what iffing" a plan is a standard practice used by military decision-makers to identify potential gaps or weakness in a plan or pending decision.

The Complex domain is the first of the un-ordered domains and deals with complex relationships that exist through the interaction of multiple actors and influences. Here cause and effect relationships exist but both the number of actors and intertwined relationships resist categorization or analysis. Patterns may repeat in this domain, but there is no guarantee they will continue to repeat because the underlying causal factors are not open to easy identification. These cause and effect relationships are coherent only in retrospect and resist repeating. Therefore, relying on best practices or expert opinions based on historical patterns will be insufficient in recognizing and acting on these unexpected patterns. The decision model in this domain is to probe-sense-respond; meaning it is necessary to create probes to make patterns or potential patterns more visible before action is taken, then sense those patterns and respond by stabilizing the desirable patterns and destabilizing the undesirable ones. To understand the Complex domain, requires multiple perspectives on the nature of a given system coupled with the patience to "stand still" in order to accurately assess the results of injected probes rather than relying on established procedures or past experiences to determine ones response.[12] From a military perspective, the need for a rifle company to dispatch security or reconnaissance patrol upon occupying a new AO in order to better understand the environment and what counter-insurgency actions are needed would serve as an example of operating in the Complex domain.

[12] Ibid, 469.

The Chaos domain is a system that is turbulent with no perceived cause and effect relationships evident coupled with a lack of response time to investigate changes in the environment. Because there are no perceivable cause and effect relationships, there is nothing to analyze and waiting for identifiable patterns to emerge is useless. The decision model here is to act-sense-respond; meaning quick, decisive action is needed to reduce the turbulence, and then sense immediately the reaction to that action, followed by an appropriate response. The actions taken may be of a very authoritarian or aggressive nature in order to quickly control the space and move the situation into the Known or Knowable domains. On the other hand, the situation may call for multiple, limited actions to create new patterns in order to move the situation into the Complex domain.[13] The immediate action drills a squad or platoon would execute when caught in an IED strike or ambush to quickly seize the initiative would serve as an example of a military unit operating within the Chaos domain and attempting to move the situation into the Known domain.

Ultimately, the Cynefin framework is a model based on conscious thought and experience, meaning that it is most concerned with how people perceive and make sense of situations and circumstances in order make decisions. What is important to understand is that perception and sense-making are different in order versus un-order. As seen in Figure 7 previously, the framework has a strong boundary between the two dominate domains of order and un-order with a weaker boundary separating the sub-domains of Known-Knowable and Complex-Chaos. In the Order domain the most important aspect in sense-making is identifying the boundary between what can be acted on now (what is

[13] Ibid.

known) and what requires more investigation (what is knowable). In the domain of Un-order, the distinctions between how things interact are more important than distinctions of knowability; meaning it is more important to spend time identifying what can be patterned (what is complex) and what needs to be stabilized for patterns to emerge (what is chaotic).[14] It is also important to understand that operations and decision-making within the Order domain lend themselves to being more intuitive as the decision-maker is more familiar with their surroundings. Conversely, the Un-order domain requires a more analytical approach as the decision-maker must first assess their environment, analyze the events occurring and then formulate an appropriate response or action.

Understanding the concept of boundaries in sense-making is crucial for the Cynefin model to be of assistance to military decision makers in three fundamental ways. The first is the idea of being conscious of crossing a boundary. This is important so that a decision maker can respond quickly to the new conditions confronted in a new domain. Second, is having an awareness of approaching a boundary so that decision makers can sense when change is imminent and respond before the boundary is crossed. Third, is the idea of managing the boundary. While rather advanced in its application, the idea here is to purposefully allow or deny access to a particular domain to an adversary or one's own unit.[15] In the end, this concept of boundaries can assist decision-makers to develop a better understanding of their environment, a situation, and needed actions.

Lastly, using the Cynefin model as a guide, training, education, and experiences should ultimately be developed with the idea of "expanding" the bounds of the Known

[14] Ibid, 470.
[15] Ibid, 475.

domain for units and individual decision makers. As shall be seen, the recommended additions of critical thinking skills, history, culture, language, and human profiling techniques are all designed to expand the Ordered domains of Known and Knowable, thus increasing the ability for small unit leaders and decision makers in general to act intuitively and aggressively. However, recognizing that the Complex and Chaos domains of Un-order can never be eliminated, developing an understanding of how best to operate within them via analysis and assessment creates adaptive and innovative leaders who are comfortable operating in the Un-order domains. One of the five key principles outlined in the DOD's Strategic Plan for the Next Generation of Training is that "it must produce a learning organization that senses change and adapts rapidly to new environments."[16] The Cynefin framework of sense-making is a cognitive tool that can assist this greatly.

The Need for Critical Thinking

The concept of developing critical thinking skills in senior officers is not a new one. Its use has become commonplace and almost cliché in the intermediate and senior level service colleges in its efforts at evoking the idea that senior officers must think long and hard about the situations confronting them and the plans and decisions they might make. However, the realities of today's IW battlefields demand that small unit leaders be imbued with these critical thinking skills as well.

At its essence, critical thinking is about questioning and analyzing any subject, content, or problem one might confront. It is the process of making thoughtful judgments

[16] U.S. Department of Defense, Office of the Under Secretary of Defense (P&R), *Strategic Plan for the Next Generation of Training for the Department of Defense* (Washington, DC: Government Printing Office, 23 September 2010), 6.

to respond to situations, answer questions, solve problems and address issues and is based on one's training, education, experience, observations, and input from others. Critical thinkers do not readily accept something as true or accurate until they have thoroughly investigated it and come to their own informed conclusion. The ideal critical thinker is characterized by someone who strives to be clear, accurate, precise, and relevant in their thinking. They have a willingness to see ambiguities, question assumptions, explore multiple potential answers to a problem and a recognition that few answers are black and white.[17] In his book *Th!nk*, Michale LeGault reinforces this concept by stating "…the three basic activities involved in critical thinking are finding evidence, deciding what the evidence means, and reaching a conclusion about the evidence. It follows that keen observation, both wide ranging and specialized knowledge, memory, good information, and analytical tools will all be important in boosting critical thinking."[18] The Paul model, as seen in Figure 8[19], can serve as a reference for how critical thinkers should use their cognitive abilities for real world problems. By applying the elements of reasoning and following the intellectual standards listed, critical thinkers are able to make reasoned judgments. The Paul model offers practical guidelines for thinking that can assist small unit leaders in determining priorities, information gathering, and informed decision-making.[20]

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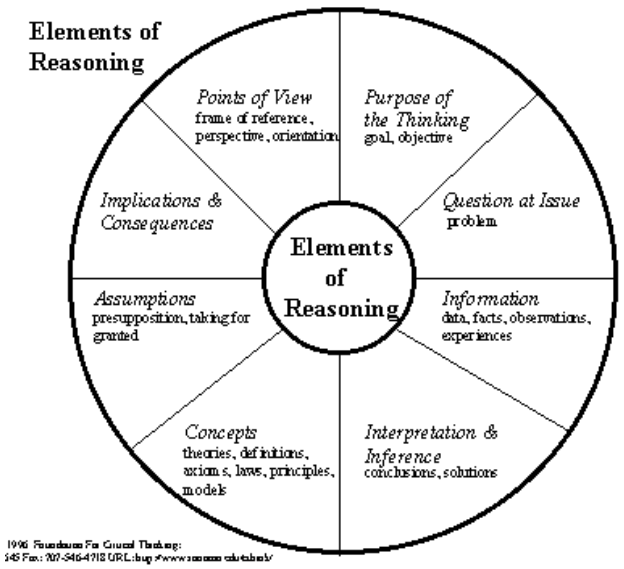
[17] Lance Armstrong Foundation, "Overview of Critical Thinking," 18 Novemeber 2009, http://www.livestrong.com/article/14710-overview-of-critical-thinking/ (accessed 25 January 2011).

[18] Michael R. LeGault, *Th!nk, Why Crucial Decisions Can't Be Made in the Blink of an Eye* (New York: Threshold Editions, 2006), 37.

[19] Richard Paul and Linda Elder. *The Miniature Guide to Critical Thinking Concepts and Tools* (Upper Saddle, NJ: Prentiss Hall, 2001), 2.

[20] Col W. Michael Guillot, "Critical Thinking for the Military Professional." *Air & Space Power Journal – Chronicles Online Journal*, 17 Jun 2004. https://acc.dau.mil/CommunityBrowser.aspx?id=37423 (accessed November 15, 2010).



Intellectual Standards

Clarity

Accuracy

Precision

Relevance

Depth

Breadth

Logic

Significance

Fairness

Figure 8: Elements of Critical Thinking

The challenge lies in how to develop critical thinking skills in small unit leaders when so much of their training and education is currently focused on very rote, task specific skills. This is due to the fact there is a major difference between specific task related thinking and critical thinking skills and problem solving ability in general. Task driven thinking can often be learned by rote, like mastering the steps of a recipe without having to consult a cookbook. Task driven thinking is a method of thinking that is less critical, analytical or creative than it is organizational, predetermined by routines and pragmatic realities.[21] These are the exact shortcomings with the task-condition-standard training rubric currently being applied to small unit leader development.

Research has shown that we are all born with the ability to think critically, but like any skill, it is one that must be honed and perfected by practice. Critical thinking requires an intellectual base that must be built over time in order to maximize its

[21] LeGault, *Th!nk*, 39.

potential.[22] The initiatives to better educate small unit leaders regarding history, culture, language, and profiling discussed next are all complimentary to this idea and supportive of instilling critical thinking skills.

At first glance, it might appear that attempting to instill critical thinking skills in small unit leaders runs counter to developing and enhancing their intuitive abilities. Proponents of critical thinking laud its virtues because critical thinking avoids jumping to conclusions by withholding judgment until enough evidence has been gathered to prove or disprove a hunch. However, more times than not, as studies have shown, years of research and critical thinking about a topic have laid the mental groundwork for intuitive leaps.[23] As Malcolm Gladwell stated in his book *BLINK*, "Truly successful decision making relies on a balance between deliberate and instinctive thinking."[24] It therefore holds that instilling critical thinking skills in small unit leaders is not counter to intuitive decision making at all. Rather, it helps develop it by instilling a questioning mind via focused education and realistic training that is primed to "think" and "blink" when confronted with stressful and time constrained situations.

History, Culture, and Language

Key to developing an intuitive database for successful decision-making in IW, small unit leaders must be provided a solid grounding in the history, culture, and language of the areas they will most likely be operating and IW in general. Supporting this concept is

[22] LeGault, *Th!nk*, 37.
[23] Idib, 35-37.
[24] Malcom Gladwell, *BLINK: The Power of Thinking Without Thinking* (New York: Little, Brown and Company, January, 2005), 141.

the DOD's call for "markedly increasing language, regional and cultural capabilities and capacities."[25]

Currently there are a number of efforts and programs utilized by the services to facilitate this. However, most of these efforts are conducted at the unit level and usually in preparation for unit deployments. This is the case in the Marine Corps where Marines are not provided formal instruction on the history, culture, or language of a specific country until their unit is identified to deploy there. This was the case with units deploying to Iraq and continues to this day with units deploying to Afghanistan. While these efforts at raising the overall awareness of Marines about their future operating area are commendable, it can be better executed. At present, the primary means for providing this instruction is through the use of pre-formatted lesson plans that can be downloaded from service training and doctrine websites, such as the Marine Corps' Center for Advanced Operational Culture Learning (CAOCL). CAOCL provides four ascending blocks of instruction that focus on the culture and language of a specific country or region[26]. What is lacking is the subject matter expertise that comes from an instructor or educator specifically trained on these regions and best qualified to instruct the material. In most instances, the delivery of this material is left to the individual Marine to learn via on-line resources or presented by a unit representative designated to study up on the material and present it at the unit level. While fiscal realities may prevent an experienced educator from instructing these culture and language training packages, this can be overcome or mitigated by incorporating this instruction into the formal POI's of squad,

[25]Office of the Under Secretary of Defense (P&R), *Strategic Plan for the Next Generation of Training for the Department of Defense,*14.

[26] U.S. Marine Corps Training and Education Command, "Center for Advanced Operational Culture Leaning" (CAOCL). http://www.tecom.usmc.mil/caocl/ (accessed 10 January 2011).

platoon, and company leader development courses. By providing these small unit leaders with more formalized periods of instruction on the history and culture of a specific area, they are now better equipped to make informed decisions during operations as well as better instruct and educate their own subordinates on these topics during the pre-deployment training process.

From a historical perspective, education for small unit leaders should provide a broad background on the significant causal factors that have shaped the modern world since the beginning of the 20th century. As outlined by LtGen Paul K. Van Riper, USMC in a 1994 article in the Marine Corps Gazette on the use and value of military history, instruction should provide *width, depth,* and *context.* Instructional *width* enables a leader to understand the manner in which warfare, and events in general, have unfolded. Instructional *depth* is focused on becoming extremely knowledgeable on a specific battle, campaign, or topic; such as counter-insurgency operations, in order to learn from others successes and mistakes. Lastly, historical instruction should provide *context,* in that events of a conflict do not happen in isolation but are a product of political, diplomatic, economic, and social influences. As LtGen Van Riper stated, "A knowledge of history allows one to understand the interaction of the various forces that have shaped the military profession and permits them to view current problems in the perspective of decades and centuries rather than months and years."[27]

Using this as a guide as well as the curriculum formats from the various career, intermediate, and senior level service colleges, notable areas of study should include

[27] LtGen Paul Van Riper, USMC. "The Use of Military History in the Professional Education of Officers", *Marine Corps Gazette* (February 1994): 50-51.

events leading up to and after World War I with particular emphasis on the dissolution of the Ottoman Empire and the early creation of the modern Arab and central Asian nations. Following this would be a similar study of events leading up to and after World War II again focusing on post colonialism and the era of colonial independence. Incorporated within this study would be instruction on the Arab-Israeli Wars, its causes and reasons for continued conflict today. The second significant block of instruction should include a detailed analysis of insurgency and counter-insurgency theory using specific case studies to understand the differences between rural/agrarian based insurgency like that espoused by Mao Tse Tung and more urban/industrialized insurgencies seen in French Algeria of the 1950's and 1960's and post-2003 Iraq. Lastly, small unit leaders must be provided with a strong understanding of Islam. This understanding must include instruction on the birth of Islam and its major tenets, the reasons behind the Shia and Sunni split, the concept of the caliphate, and the differences between the other various Muslim segments such as Sufism, Wahhabism, and Sharia law. Concurrent with instruction on Islam is a necessity for small unit leaders to have a firm understanding on the birth of radical Islam, its developers, major elements, significant organizations, and key contributing factors, or drivers, for its continued allure and attractiveness for Muslim youth. This is critical as small unit leaders will be at the forefront of encountering and countering this ideology in the nameless hamlets, villages, and towns in which they operate.

Complimenting this historical education package is the need for small unit leaders to have a broad understanding of culture and its implication on operations. This cultural education should focus itself at both the macro and micro level. From a macro perspective, cultural education should provide an overview of those forces that go into

creating cultures by providing an anthropological insight on areas such as ethnicity, race, religion, language, and geography. From a micro perspective, cultural education needs to focus on several critical regions or countries of the world that have enduring or near-term critical importance to the U.S.'s vital national interests as these are the areas that the U.S. will most likely commit ground combat troops. Countries such as Iraq and Afghanistan are obvious choices, but others such as Iran, Yemen, Saudi Arabia, and most recently Egypt also come to mind. Once identified, instruction on these regions must be more than just a menu of cultural customs and courtesies or list of over-simplified "do's and don'ts" like not showing the soles of your feet or eating with your left hand. Rather, this specified cultural training must focus on the nuances of race, religion, ethnicity, geography, history, tribal identity, economics, politics, mass media, and social grievances among others and how they intermingle and coalesce to create a particular cultural and operational environment.[28]

Concurrent with cultural training, small unit leaders need basic linguistic skills that will improve their abilities to better understand the "human terrain" and operate within their environment. Early integration of language training into a small unit leader's development is fundamental to them developing the language skills necessary for a "linguistically adept total force" as called for in the DOD's strategic training plan.[29] Not only will basic language skills allow small unit leaders to better interact with the local populace and partnered security forces, it will also assist in the reading of culture

[28]Office of the Under Secretary of Defense (P&R), *Strategic Plan for the Next Generation of Training for the Department of Defense*, 14.

[29] Ibid.

specific body language and the effective use of interpreters.[30] Over the last several years, the Army and the Marine Corps have made huge strides in developing and implementing language tutorials lead by native speakers as well as providing access to on-line language learning software like Rosetta Stone and integrating native role players into pre-deployment mission rehearsal exercise requiring small unit leaders to exercise their language skills. While these efforts are noteworthy, it is quite evident that culture and language are inextricably linked. A program that combines and compliments the instruction of both is needed.

In this vein, the Marine Corps' Regional, Culture, and Language Familiarization (RCLF) Program provides a model worthy of emulation. The intent of the RCLF is to "enhance and institutionalize language, regional, and culture skills for all Marines so they are better adept at operating effectively in the culturally complex environments of the 21st century."[31] Comprised primarily of web-based, on-line instruction, the program design is to provide Marines with a foundation in cultural understanding and basic language skills by assigning Marines to one of 17 micro-regions. Progressive in nature, instruction is provided via a block approach, five blocks of instruction for officers and six for enlisted. The program progresses in complexity and depth as a Marine's career evolves. Currently, the program is being introduced in phases with the development of Blocks I and II for First and Second Lieutenants and contains a general module on operational

[30] Ibid.

[31] U.S. Marine Corps, *Implementation of the Regional, Culture, and Language Familiarization Program Officer Block II via MARINENET,* Marine Administrative Message (MARADMIN) 468/10 (Washington, DC: U.S. Marine Corps, 18 August 2010), 1.

culture followed by a micro-region specific module.[32] Concurrent throughout the cultural modules, Marines will progress in the development of their language skills. Crucial to the successful development of future modules will be the inclusion of skills focusing on empathy, negotiations, self-reliance, listening, trust building, and use of interpreters.[33] Again, this will require the services to exercise judgment as to what regions, countries, and languages are prioritized. However, current and projected operational commitments coupled with an understanding of which regions of the world serve as key areas of vital national interest will serve a worthy guide. Ultimately, the combined effects of historically informed, culturally aware, and linguistically adept small unit leaders will promote the idea of low level "strategic communication messengers" as envision by the former International Security Assistance Force (ISAF) Commander, GEN Stanley McCrystal in his 2009 guidance for the Afghanistan campaign.[34]

Combat Profiling the Human Terrain

Concurrent with the need for small unit leaders to be well versed in the history, culture and language of an area, the past decade of conflict has clearly identified human profiling techniques as a new "core competency" critical for survivability and success in IW. This was made readily apparent five years ago as operations in Iraq lead the Marine Corps to identify the need for these types of skills as casualty reports in Al Anbar Province showed a marked increase in direct fire incidents. Specifically, Marines, sailors,

[32]U.S. Marine Corps, Marine Administrative Message (MARADMIN) 468/10, *Implementation of the Regional, Culture, and Language Familiarization Program Officer Block II via MARINENET*, 18 Aug 2010.

[33] Office of the Under Secretary of Defense (P&R), *Strategic Plan for the Next Generation of Training for the Department of Defense*, 14.

[34] GEN Stanley McChrystal, Commander International Security Assistance Force (COMISAF), *Initial Assessment*, 2008, Annex D-6.

and soldiers were taking rifle shots to the head, neck, and lower abdomen, many times at close range. As casualty data was collected and after action reports analyzed, the results showed a dramatic increase in precision fire engagements on vital areas of U.S. personnel. It was concluded that U.S. personnel were being hunted by insurgent marksmen hiding amongst the population.[35] Most disturbing was the conclusion that a majority of these direct fire engagements could have been avoided or defeated if Marines had only been more aware of their surroundings and adept at identifying key indicators, from both the physical and human terrain, that they were entering likely engagement areas.

The challenge facing Marine leadership was how to better instill a "hunter mindset" within its ranks for both urban and rural operations to counter this effective and evolving threat. Soon after a diverse group of Marines and civilian subject matter experts (SMEs), with experiences as wide ranging as big game hunting, safari guiding, man tracking, Vietnamese counter insurgency operations, inner city gang life, and urban law enforcement, were assembled to discuss how to make Marines better hunters in both urban and rural environments. The result was the development and the implementation of a training program called Combat Hunter (CH).

A three-pillared program, CH incorporates enhanced observations skills, combat tracking skills, and human profiling skills, referred to as combat profiling.[36] When viewed as a three-legged stool, it was found that the combined, or synergistic, effects of

[35] U.S. Marine Corps, *Combat Hunter*, 1.

[36] The author served as the Commanding Officer of the Marine Corps' Advanced Infantry Training Battalion (AITB) from 2007 – 2009 and was responsible for the final development of the Combat Hunter Program and its service wide implementation. He also served as a key contributor in the development of Marine Corps Interim Publication (MCIP) 3-11.01 *Combat Hunter*.

these three pillars of the CH program produced the hunter mindset needed for survivability and success in Iraq, and IW in general, with combat profiling, serving as the key component.

At its basis, the CH program is designed to get inside and interrupt the enemy's OODA loop. The intent of the enhanced observation pillar of the program is to facilitate a person's ability to better observe their environment. The program accomplishes this in three ways. First, it provides a methodology for establishing awareness levels and how individuals process and respond to stimuli. Referred to as Cooper's Color Codes, the color code allows individuals to identify the different states of awareness and levels of stress placed upon them and members of their unit allowing them to better anticipate when they should heighten their awareness. (See Figure 9[37] below)

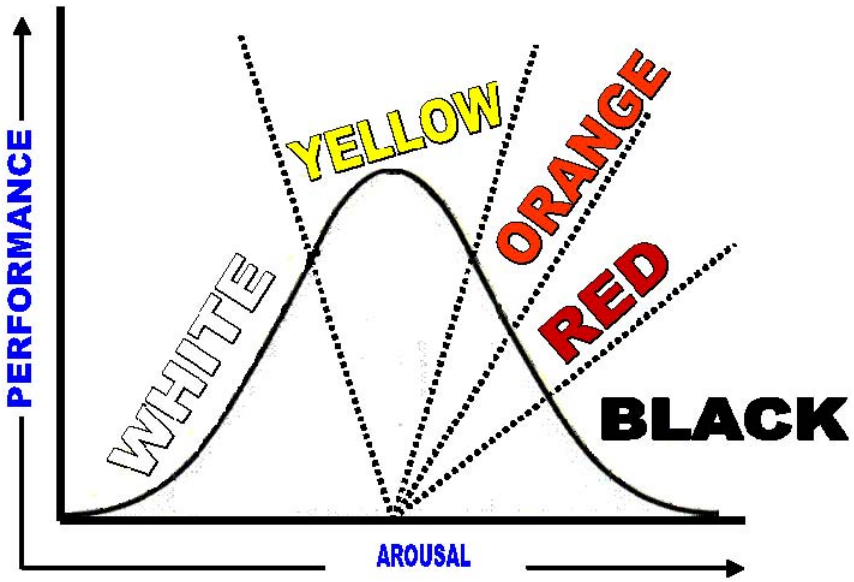


Figure 9: Cooper's Color Codes

[37] U.S. Marine Corps, *Combat Hunter*, 7.

Second, it provides instruction on how humans gather and process information via their five senses focusing primarily on the physiology of sight, why and how things are seen, and types of observation techniques. Third, students are provided detailed instruction on the effective use of day, night, and thermal optics to better observe and survey their operating areas. By identifying quick and effective training methods for the use of observation equipment and teaching personnel how and what to look for, they now have the skills to begin establishing baselines within their operational area and detect anomalies that can indicate the presence of a threat. This is a critically important foundation that supports and enables both combat tracking and combat profiling skills. (See Figure 10[38] below)

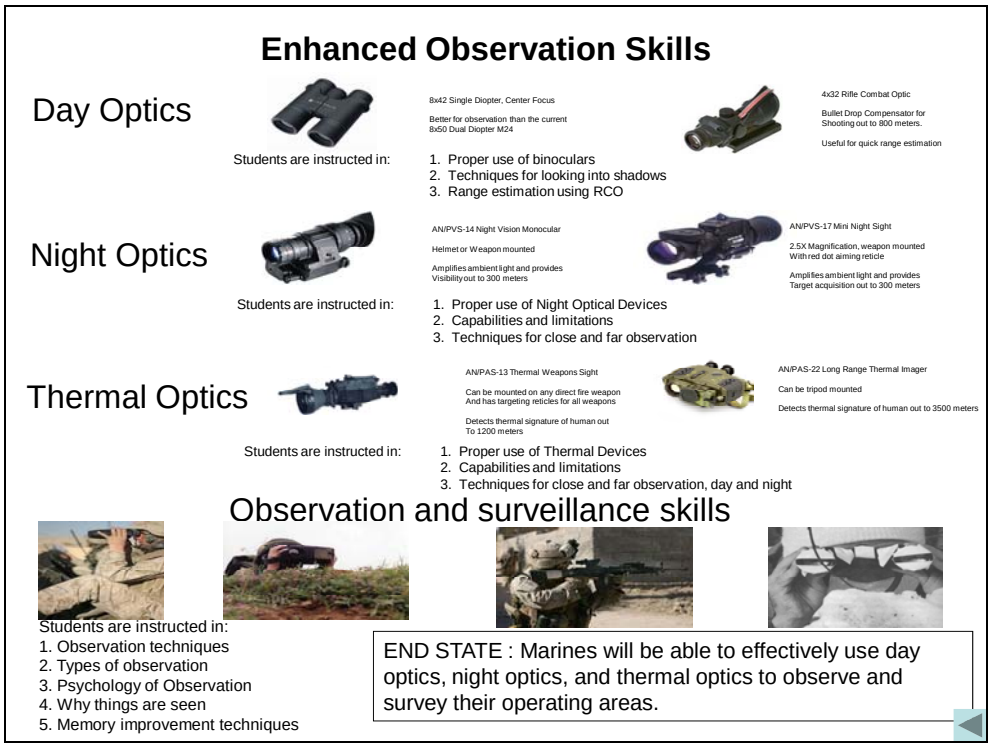


Figure 10: Enhanced Observation Skills

[38] LtCol Christopher Gideons., Col Frederick Padilla, Col Clarke Lethin, "Combat Hunter: The Training Continues", *Marine Corps Gazette*, (September 2008), 80.

The combat tracking portion of CH emerged after discussion and understanding of the tracking skills employed by former Rhodesian Selous Scouts. Building on the OODA loop concept, combat tracking complements the enhanced observations skills by better orienting one to what they see on the ground and in their physical environment. Thus, providing greater context and relevance and reinforcing an individual's understanding of their environment and events occurring within it. Tracking is the art and science of locating, interpreting, and following the signs, or spoor, left behind by people or animals when they move through an area. Combat tracking is the tactical employment of these tracking skills to gather intelligence with regard to an enemy's size, activities, location, composition, equipment, and intent.[39] It is effective in open or close terrain and can also be applied in rural and urban environments. By focusing on the dynamics of a footprint, and the action indicators associated with it like stride, straddle, pitch, pressure, and dwell time, as well as other indicators like litter, body waste, and ground, air, and blood spoor, combat tracking reinforces a logical thought and action process, both for individuals and teams.[40] While it takes time to become a true expert tracker, combat tracking is not a "black art" but rather a set of skills that can be taught and mastered. The basics of these skills are applicable to all in that they produce individuals who are much more attuned to their physical environment further assisting in the development of environmental baselines and detection of threat anomalies. (See Figure 11[41] below)

[39] U.S. Marine Corps, *Combat Hunter*, 39.
[40] Ibid, 41-46.
[41] Gideons, Padilla, Lethin, "Combat Hunter: The Training Continues", 81.

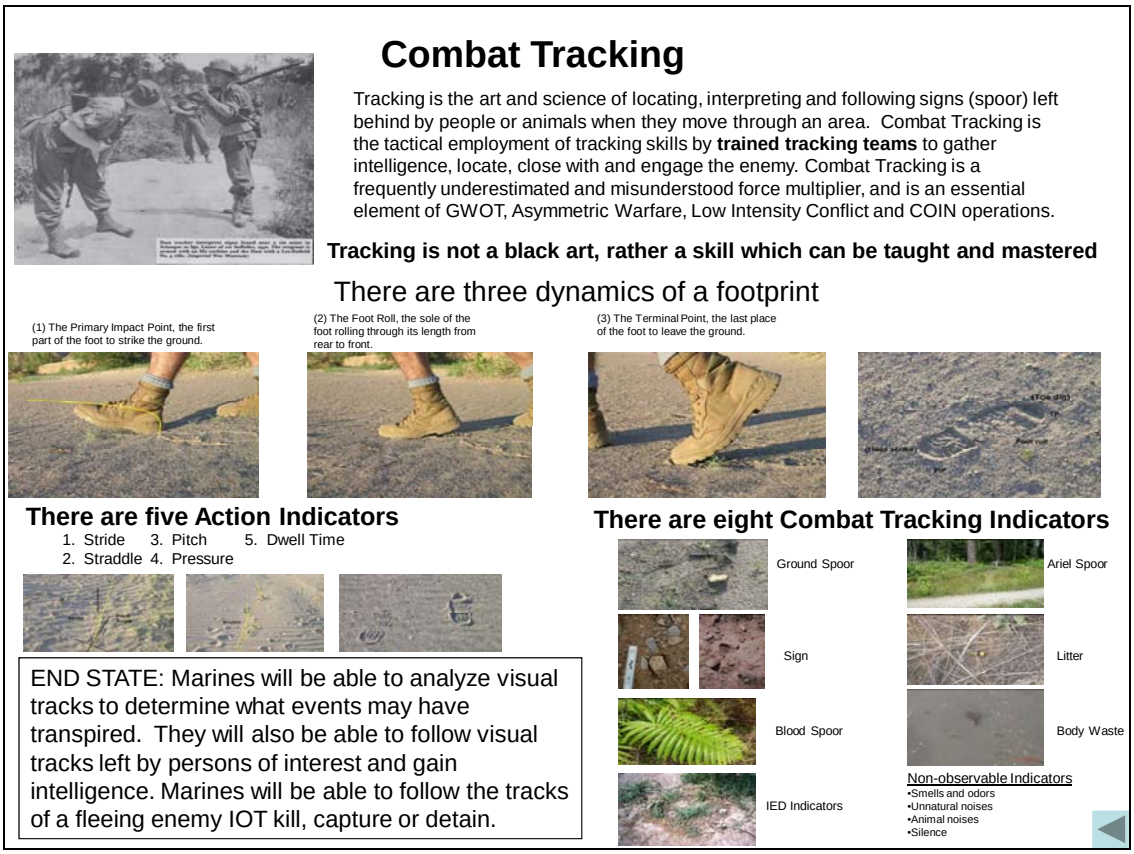


Figure 11: Combat Tracking

Much like land navigation skills and global positioning system have allowed small unit leaders to effectively assess and operate within the physical terrain, profiling skills provide the ability for small unit leaders to effectively read and navigate the human terrain. Understanding that humans by their nature tend to establish and follow predictable behavior patterns, combat profiling is a method of proactively identifying enemy personnel or threats through human behavior pattern analysis and recognition. Again using the OODA loop concept as a guide for decision-making, combat profiling assists not only in the observe and orientation phase, but most importantly in the decide and act phases.[42] It does this by relying on the identification of typical behavior patterns and conduct to establish a baseline. Referred to previously, a baseline is a basis for

[42] U.S. Marine Corps, *Combat Hunter*, 29.

comparison; a reference point against which other things can be evaluated. Everything has a baseline: cultures, neighborhoods, environments. Once a baseline has been established, personnel now have the ability to look for anomalies. An anomaly is a deviation from the common, or baseline. Simply, it is something that is there which should not be, or something that is not there which should be. Once an anomaly is detected it must be analyzed and a decision made to act on it or not.[43]

Built upon a number of cognitive principles, combat profiling requires real-time, eyes on training in order to develop the skills necessary to be proficient at human behavior analysis. The first of these cognitive principles is the concept of file folders. File folders are mental compartmentalized bits of knowledge developed through an individual's life experience which contribute to pattern recognition.[44] This knowledge is gained both explicitly via general education and tacitly via hands on practical experience. Second is the concept of pattern perception which encompasses template and prototypical matching. Template matching is an exact match of an item while prototypical matching is a close enough match of an item. For example, "A" is a template match for "A" while "a" is a prototypical match for "A". Understanding pattern perception is important, as the majority of what people see is a prototypical match; meaning they find items by matching their similarity based upon known or expected examples within a category. Once they observe something as "close enough" they move on. This can have negative consequences when a person is tasked to template match, such as looking for a specific vehicle on a look out list, as the person may miss other vehicles that are not an exact

[43] Ibid, 29-30.
[44] Ibid.

match but would ordinarily stand out otherwise. [45] Third, is the concept of sequencing. Sequencing is the method the brain uses to make order out of chaos by placing things in order or groupings, even if they do not belong. It is this concept of using our perceptions to fill in the areas we do not understand that allows things to "hide in plain site".[46] Last is the concept of emotion and memory link which refers to associating an emotional response with something that is learned. The importance here is that profiling training must be as realistic and emotionally involving as possible because events that cause strong emotional responses will create strong memory links that can be easily recalled during periods of high stress or boredom.[47]

In order to actually asses and analyze human behavior patterns, individuals are taught to use six scientifically tested domains organized around individual body language cues and environmental factors. The six profiling domains utilized are kinesics, biometrics, proxemics, atmospherics, geographics, and heuristics. These domains form the real basis of combat profiling training and are the metrics against which behavioral and environmental cues are weighed to determine if an anomaly is present and if action must be taken. (See Figure 12[48] below)

[45] Ibid, 17.
[46] Ibid, 31.
[47] Ibid.
[48] Gideons, Padilla, Lethin, "Combat Hunter: The Training Continues", 82.

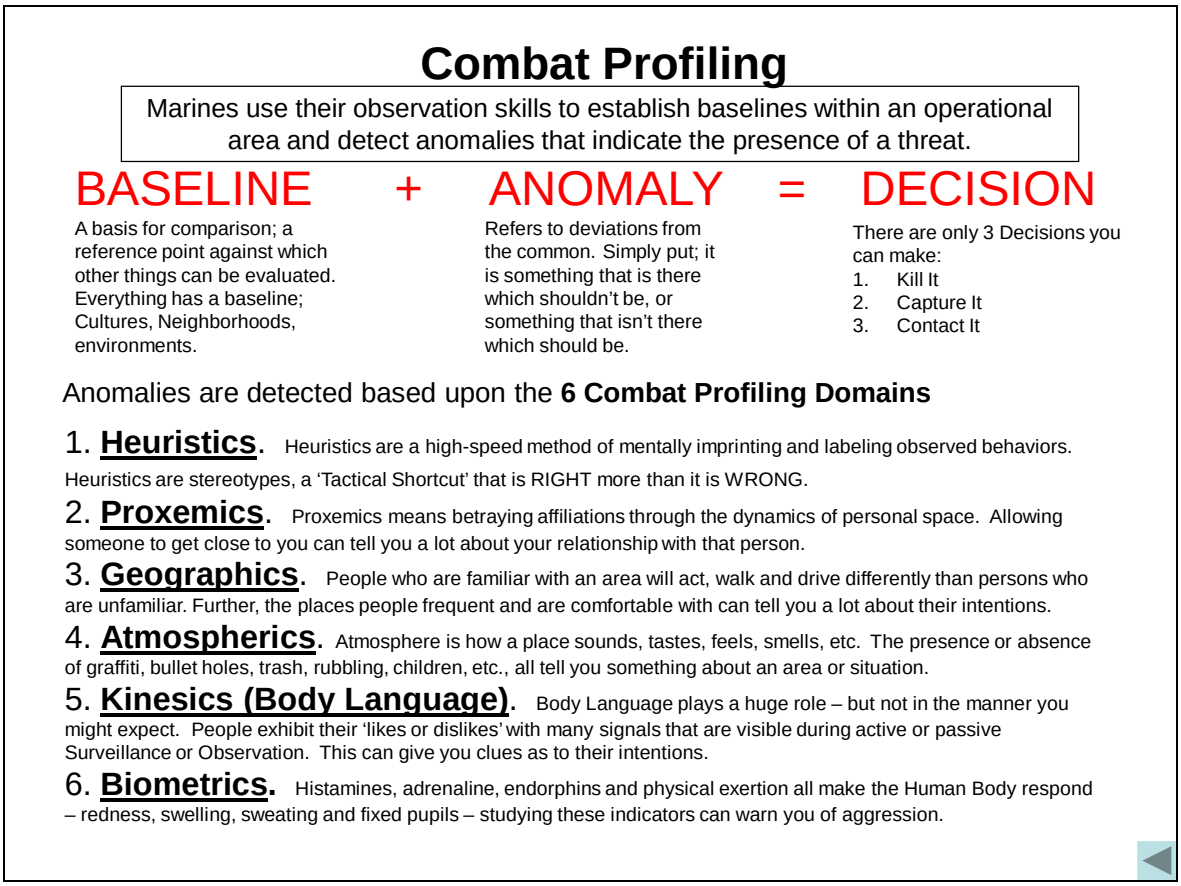


Figure 12: Combat Profiling

Kinesics and biometrics fall into the body language domain, which essentially is communicating without speaking. More often than not, individuals cannot control their body language and normally are unaware they are displaying certain behavior patterns. Kinesics is the art of reading body movements, gestures and facial expressions. Studies suggest that up to 65% of communication between humans is nonverbal, and it is generally agreed that 99% of all emotional communication is nonverbal. These nonverbal cues can give indications whether a person is angry, sad, violent, or deceitful all at observable distances.[49]

[49] U.S. Marine Corps, *Combat Hunter*, 33.

Biometrics cues are instinctive physiological reactions to a stimulus. Histamines, adrenaline, and endorphins all create certain body responses, such as reddening or flushness in the face, swelling, profuse sweating, and dilated pupils. Since these cues are biologically controlled, they are impossible to hide and when understood can provide early warning of a person's fight or flight intent.[50]

Proxemics, atmospherics, and geographics domains fall into the category of environmental factors and are based largely on how individuals interact and respond to one another and the physical environment that surrounds them. Proxemics is the interpretation of spatial relationships within the context of cultural norms, tactical considerations, and psychosocial factors. It is the act of betraying affiliations through the dynamics of proximity. Proxemics can be further categorized as relative distance, proxemic push or pull distances, or proximity negates skill distances.[51]

Relative distance is distance between people. Further categorized as intimate, personal, social, and public, relative distance can indicate a great deal about individual and group relationships. Allowing someone to get close to you says a lot about your relationship with that person. People who do not know each other will act differently when they meet compared to those who have known each other for a long time. What is important to remember is that different cultures have differing norms for interpersonal space that must be taken into account further necessitating the need for cultural training in IW.[52]

[50] Ibid, 33-34.
[51] Ibid.
[52] Ibid.

Proxemic push or pull can indicate an individual's comfort level with a given person, group, or situation. A proxemic push is when unfamiliar entities meet and naturally drift apart creating distance from one another. This tends to be associated with potentially uncomfortable or threatening situations. Proxemic pull occurs when familiar entities meet and naturally attract each other, decreasing the distance between each other. Proxemic pull tends to be associated with familiar or nonthreatening situations. Coupled with Proxemic push and pull is the idea that proximity negates skill. Simply put, the closer an enemy is the less skill he is required to have to harm or kill you. By observing from greater distance and being perceptive of the proxemic push and pull of a crowd, small unit leaders can increase the distance in both time and space between themselves, their unit and a potential threat.[53]

Proxemics can also be used to identify key leaders and persons of interest by understanding the concepts of adoration, mimicry, entourage, and direction. Adoration is the outward sign of respect or affection that is given when an individual is held in high status. Members of a group becoming silent or providing their undivided attention when an individual speaks would be an example of adoration. Mimicry is when one individual takes on the attributes of another by mirroring and matching their characteristics such as their dress, gestures, or expressions. Entourage is when one or more people who tend to show subordination or submissive behavior accompany an individual, such as junior officers walking to rear of a senior commander. Direction includes those verbal orders,

[53] Ibid, 33.

gestures, and pace of movement that guide subordinates in their actions and effect the overall atmosphere.[54]

Interpreted consciously via the five senses and subconsciously via intuition, atmospherics are those qualities that are specific to a certain locale: the sights, sounds, smells, tastes, and feel of an area. Atmospherics can include bullet holes, rubbling, graffiti, level of activity, and demeanor of the populace among others. Atmospherics can include hostile incident indicators that can occur spontaneously or gradually over time alerting one to potential danger. The most obvious indicators are the sudden absence of normal routines, change in attitude of the local populace, or presence of abnormal activity. A lack of pedestrian track, absence of women and children, and appearance of unfamiliar vehicles or personnel are just some of the atmospheric changes that come to mind.[55]

Geographics is concerned with the relationship between the physical terrain, people and how they operate within it. Organized around anchor points, habitual areas, and pathways, geographics create measurable patterns within an environment helping to give indications if an individual is familiar or unfamiliar with a given area. A habitual area is an area where most individuals within a given group or sect will frequent without reservation. Inside a given habitual area will be anchor points. An anchor points is an area where only *certain* individuals within a given group or sect would frequent without reservation and have established this point as their own. Individuals outside this group would have reservations about visiting such an area. For example, urban city gang

[54] Ibid, 34.
[55] Ibid, 35.

members may congregate at a certain park or corner liquor store with their anchor point displaying graffiti and other nuances to identify their specific gang. Pathways, or natural lines of drift, are most commonly associated with a path of least resistance and can be predicted due to ease of accessibility or the presence of obstacles. Humans by nature will choose the path of least resistance and will use these same pathways repeatedly. By identifying likely pathways, small unit leaders can better protect their own unit as well as better predict likely enemy routes and ambush sites.[56]

Heuristics are the final profiling domain and fall into a category all their own because all the other behavior domains are used to make up a heuristic. Heuristics are a rapid method of mentally imprinting and labeling observed behaviors. They are stereotypes, or a mental shortcut for the brain, providing just enough information to draw a reasonable conclusion. People consciously and unconsciously create heuristics by prototypically matching against the mental file folders they have created via their training, education, and experiences. This can be both good and bad, because a corrupt mental file folder can create a heuristic giving a false sense of reality, leading to negative results. For example, if observing an individual from afar and who is talking on a cell phone while walking away from a car parked along the side of a highway, a logical conclusion would be they are calling for help with a broken down vehicle. In the U.S., this might very well be the case; however, take this same situation and place it in Iraq or Afghanistan and it could be an insurgent getting ready to detonate a car bomb. The key to identifying the difference is using the other profiling domains to place the observed action in the proper context and relevance so appropriate actions can be taken. In short,

[56] Ibid, 36.

heuristics are a means for quickly drawing reasonable conclusion, much like intuition, and can be used to inform and accelerate the decision-making process.[57]

The logic behind combat profiling is training Marines to see their environment for what it is, not through a preconceived notion of reality. By teaching Marines to use the six domains to establish baselines for their environment, they are better able to detect anomalies or abnormalities that do not conform to the established baseline. Once identified, all anomalies have to be investigated. Using the combat rule of three, individuals are taught to total up the number of cues they observe from the six profiling domains. When an individual reaches three or more cues that are above their baseline, they are taught to make one of three possible decisions - to question, capture, or kill the anomaly they observe. If the anomaly does not fit the combat rule of three, individuals are taught to disregard the anomaly and "let it go." It is this type of rapid, intuitive based, decision-making process that allows individuals to make more legal, moral, and ethical decisions; all critical in population-centric conflicts. Figure 13[58] provides a depiction of the Combat Hunter decision-making methodology.

[57] Ibid, 36
[58] Ibid, 37.

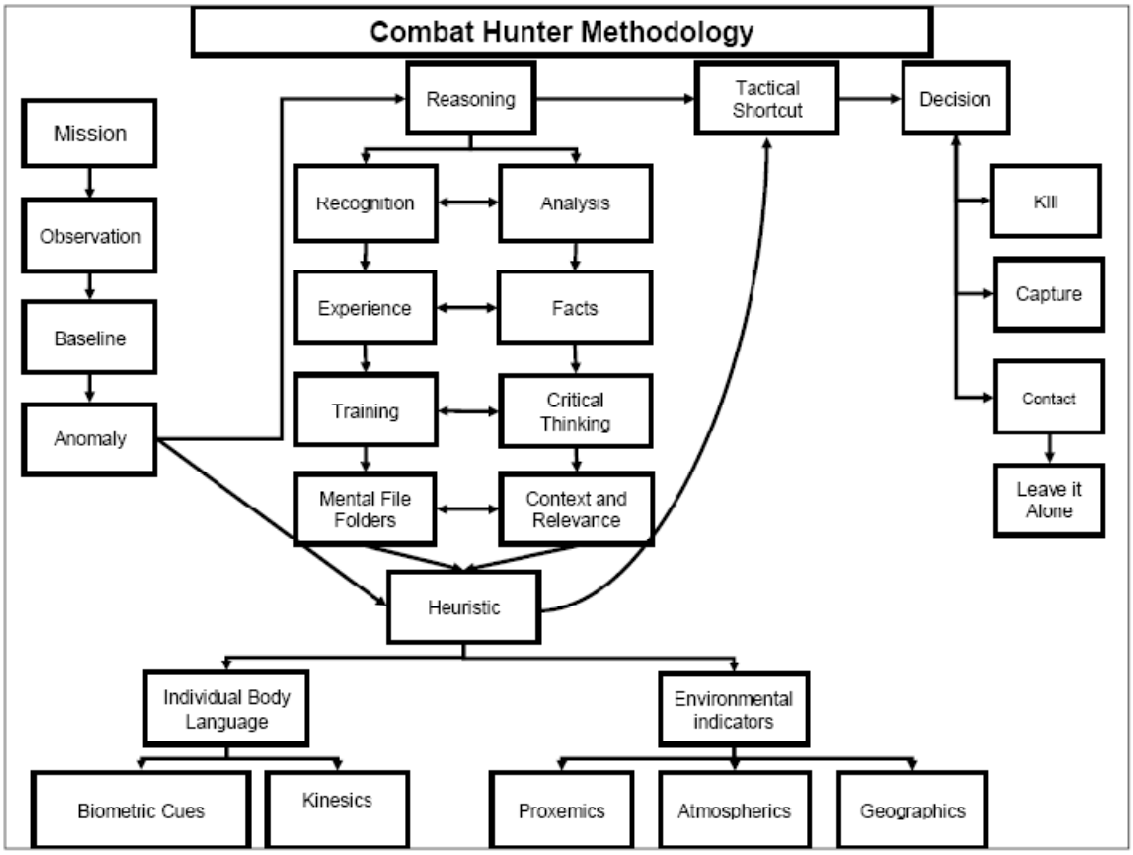


Figure 13: Combat Hunter Methodology

Based upon theses cognitive principles, combat profiling demands real-time, eyes-on training methods in order to enable personnel to detect insurgents and criminals hiding among civilians on the world's battlefields. It does this by immersing personnel in a number of scenario driven, roll player intensive, vignettes based upon enemy tactics, techniques, and procedures designed to evoke strong emotional and memory links. As these scenarios unfold, students use the profiling domains in conjunction with the combat rule of three to identify clusters of anomalies which drive them to make decisions. Based upon these training techniques, combat profiling teaches the field craft essential to developing small unit leaders comfortable and capable of operating in heavily populated irregular warfare environments anywhere in the world. Combat profiling signifies a

paradigm shift in thinking, training, and tactical application; it harnesses the lessons learned in Iraq and Afghanistan and replicates scenarios needed to succeed on current and future battlefields. By creating a hunter-mindset, personnel are more situationally aware, confident, pro-active, and armed with a bias for action.

Over the past three years, CH has been made available to deploying Marines and units and received tremendously positive feedback as to its utility in Iraq and Afghanistan. As one battalion commander said, "We have too many requirements for predeployment training, but what we can't get enough of is Combat Hunter."[59] While these efforts have been noteworthy, the current training capacity only allows for 35 to 40 Marines per battalion to receive the complete two-week CH training package due to the high instructor-to-student ratio needed to train effectively these emergent skills. The long term answer in meeting this need is to institutionalize CH-like training by introducing its basic concepts early in entry level training and further building upon it in small unit leader development courses at the squad, platoon, and company level.

By creating an educational model that combines instruction in complexity theory, critical thinking, history, culture, language and combat profiling, small unit leaders are mentally armed with the skills necessary to better recognize, question, and comprehend the situations and environments that confront them.

[59] Gideons, Padilla, Lethin, “Combat Hunter: The Training Continues”, 85.

CHAPTER 5: NEW METHODS FOR SMALL UNIT LEADER DEVELOPMENT

At this point, we have analyzed the differences between intuitive and analytical decision-making demonstrating that the intuitive form is the preferred method at the small unit leader level. Concurrent with this, we have shown that the current training paradigm of SATs, while appropriate for developing rote and procedural skills, is ill suited for developing confident and competent intuitive decision-makers. This was followed in the previous chapter with a number of recommended training and education initiatives designed to better prepare small unit leaders to operate in complex IW settings.

What is still lacking is an appropriate instructional methodology for developing adaptive and intuitive small unit leaders armed with the depth and breadth of experiences to excel in IW. With this in mind, the U.S. Army is developing a new approach to training and education called Outcome-Based Training and Education (OBTE) while employing a new teaching method under the umbrella of OBTE called Adaptive Leaders Methodology (ALM). These two new and emergent educational concepts are designed specifically to develop adaptive leaders and intuitive decision-makers.[1] Additionally, advances in simulation and immersive training environments tailored specifically for ground combat arms specialties now provide the means and ability to accelerate, or compress, experiential learning at the small unit leader level. When viewed through an "ends, ways, and means" strategic framework, OBTE and ALM provide the "ways" for enabling the educational and training "means" discussed in previous chapter. The application of these "ways" and "means" pave the way for achieving the stated "ends" of this paper of producing adaptive, intuitive small unit leaders capable of excelling in IW.

[1] Vandergriff, *When Do We Teach the Basics?*, 69.

Outcomes Based Training and Education

In its recently published Field Manual 7-0, *Training for Full Spectrum Operations*, the U.S. Army recognizes the need for change in its training methodologies by stating, "Traditional training and education may not meet all the needs of an expeditionary Army; as appropriate, training and education must adapt to meet the needs of a new operational environment."[2] OBTE is the outgrowth of this stated need. Developed by the U.S. Army's Asymmetric Warfare Group (AWG) in conjunction with the Johns Hopkins University of Applied Physics Laboratory, OBTE is a philosophy of training and education that focuses on the holistic development of the individual by equipping them with the necessary skills and promoting the intangibles that ensure combat effectiveness in IW and full spectrum operations. As stated in the final report of a recent OBTE workshop, "This philosophy promotes the development of adaptive thinking, individual initiative, collective agility, and most importantly, confidence of participants in all aspects of training and education."[3]

While OBTE is a new and evolving training methodology, it does not propose the whole sale scrapping of the current standards-based training paradigm. As stated previously, the current SATs model evolved out of a need for the services to have assurances that individuals and units could, within certain constraints, perform assigned duties and accomplish assigned missions. Unfortunately, what has evolved is a training system in which "established standards" are now viewed as a minimal acceptable level of performance and this base standard, or performance floor, is interpreted as the overall

[2] U.S. Department of the Army. *Training for Full Spectrum Operations.* Field Manual 7-0 (Fort Leavenworth, KS: Combined Arms Center, 12 December 2008), 3-7.

[3] McDaniel, *OBTE Integration Workshop-Final Report*, 1.

objective of the training. Unfortunately, a performance floor is not consistent with either excellence or mastery, both of which are desired goals for any military organization. [4]

Where OBTE differs from the standards based training model of SATs is that it is focused on the overall outcome of the training event, exercise, or mission whereas standards based training is more concerned with the execution of a specific task to an established base-line standard. However, the attainment of a "standard" does not accomplish a mission or ensure success in combat, but achieving a desired outcome, much like achieving a commander's desired intent, will. It is this focus on outcomes, vice task accomplishment, that differentiates and empowers OBTE.

The following vignette from AWG's OBTE Integration Workshop was used to illustrate the concept of an outcome. The vignette dealt with the "low crawl" and how to keep Soldiers safe. As most people know, the low crawl is a technique taught in military basic training to make a person less vulnerable to enemy fire. The question posed at the conference was, "When should the low crawl be used?" The standard answer given was, "When the Soldier is under fire." This was followed by a list of circumstances where it would be inappropriate to low crawl; such as when the enemy is on high ground, because low crawling would expose the soldier more and reduce their mobility. Conversely, the more appropriate answer to the question is, "When it helps keep the Soldier safe by making them less vulnerable to enemy fire." The difference here is that the second answer is not prescriptive, but relies on the individuals to determine their own circumstances and act accordingly. Low crawling is only one possible means of reducing a person's exposure to enemy fire, but should be used only when it fits the situation.

[4] Ibid, 3.

Ideally, training should focus on the outcome of making the soldier safe and training them to perform the low crawl becomes just one of the many objectives of the training.[5]

As seen in this simple example, by clearly defining desired training outcomes, much like a commander expressing his intent in an operations order, trainers and students are provided with the broader purpose and vision of the training, which noted earlier in this paper, is currently missing in standards-based training. As stated in the AWG/Hopkins OBTE report, "…learning *outcomes* define the broader purpose of training and education; they characterize behavioral aspects that should be evident in the execution of military missions or tasks. Learning *objective*s, on the other hand, are far more specific and correspond with observable actions that must occur to demonstrate that learning has occurred."[6] In the end, OBTE does not strive to diminish the importance of performing tasks to established standards. Rather, it strives to move the focus of the training from meeting the standard to developing the skills, judgment and decision-making needed to achieve the outcome. Key to this is developing the course outcomes so they incorporate all the objectives of the course; this includes both the measureable, tangible skills that must be performed to standard and the intangible qualities that are necessary for success in combat. This concept not only reinforces the use of standards for the good, but it also gives them a completely new purpose in holistically evaluating the student.[7] One means of refocusing training from the attainment of standard minimums to the accomplishment of task mastery advocated by OBTE proponents is to not reveal the training standard to the students until after the event is over. This simple change encourages each student to

[5] Ibid, 2.
[6] Ibid, 3.
[7] Ibid,11-13.

strive to perform at their personal best vice just perform to the minimum acceptable standard. This is highlighted by the fact that students generally tend to exceed standards when the standards are not presented as the overall goal of the training. In the end, this approach places the emphasis on each individual to learn and perform the skill to the best of their abilities. [8]

In execution, OBTE students are introduced to the fundamentals of a larger task, often through the introduction of a problem or exercise. From here, the students learn to perform these fundamentals correctly in a basic, low stress environment that over time progresses to a more stressful, complex and chaotic environment that requires the student to adapt these fundamentals to account for the new situation. This allows the student to rapidly learn new skills as well as increase proficiency in previously learned skills in order to account for these increasingly difficult situations.[9] While some would say this approach is no different from the SATs model of progressing from individual to collective training tasks under varying conditions, the difference lies in how the students come to learn those skills and most importantly apply them. Unlike competency-based curriculums, where students are given the answers and then expected to perform to standard, OBTE relies more on experiential learning found in Adaptive Leader Methodology where students are given the latitude to explore and discover the answers for themselves.

Ultimately, OBTE moves training and education beyond the minimalist approach of standards-based training and works to achieve the excellence and mastery of military

[8] Ibid, 3-13.
[9] Ibid, 2.

skills and decision-making envisioned in Army training doctrine. As further stated in FM 7.0, "OBTE is supposed to develop individuals and organizations that can think and operate in complex environments…the focus is on the total outcome of a task or event rather than on the execution of a particular task to a standard under a given set of conditions…it is supposed to develop tangible skills such as marksmanship and intangible attributes such as creativity and judgment."[10] Under OBTE, the emphasis is on developing decision-makers by explaining the "why" behind the task and teaching in the context of problem solving and mission accomplishment. It is for this reason that many of the strongest advocates for OBTE are those with extensive combat experience who believe firmly that "strong basic skills along with the understanding of the principles involved made them much more effective in the field because they knew both *how* and *why* to use their training."[11] It is quite clear, if for no other reason than this, that OBTE is the overarching training rubric best suited for developing future small unit leaders.

Adaptive Leaders Methodology

Much like OBTE, ALM is an outgrowth of a stated need by the U.S. Army's Training and Doctrine Command (TRADOC), which identified in its 2006 Campaign Plan the need to move away from its current Industrial-Age leader development paradigm. One of the Campaign Plan's stated objectives was to "Reshape the fundamental Army Learning Process for a Dynamic Operating Environment" with the intended purpose of developing officers and NCO's who are both intuitive and

[10]U.S. Army, *Training for Full Spectrum Operations*, 3-7.
[11] McDaniel, *OBTE Integration Workshop-Final Report*, 15.

adaptive.[12] From this vision and under the guiding principles of OBTE, ALM was developed as a way to teach and reach outcome related training objectives.

At its basis, ALM uses the experiential education and Recognition Primed Decision-making (RPD) models in the form of situational training exercises (STX) and tactical decision exercises (TDE) to develop professionalism, decision-making skills and strength of character, all necessary traits for effective small unit leadership.[13] In this vein, ALM does not strive to arrive at "school book" solutions, require the memorization of vast amounts of data, or utilize a prescribed checklist. Rather, ALM requires that students be placed into increasingly complex and disorganized scenarios often with instructor imposed time constraints designed to generate stress. At the end of the exercise, students are required to not only brief their solutions, but most importantly how and why they arrived at their solutions. This is followed by critiques from both the instructor and fellow students. Coupling the STX's and TDE's with military history and free play field exercises only helps to contribute to student decision-making and adaptability.[14]

While the use of STX's and TDE's is not new to military trainers as a teaching concept, what differentiates their use in ALM is that most times the students are not previously instructed on the concept the TDE is designed to address. This experiential education concept is based upon the theories of Johan Pestalozzi a Swiss educator from the 1700's who postulated that students would learn faster if they experience something before they try to learn it.[15] This simple change promotes a more experiential or

[12] U.S. Army, *Adaptive Leaders Course: Teaching Old Dogs New Tricks*, (Arlington, VA: U.S. Army Capabilities Integration Center (Forward), 10 May 2006), iii-1.
[13] Vandergriff, *When Do We Teach the Basics?*, 71.
[14] Ibid, 73.
[15] U.S Department of the Army, *Adaptive Leaders Course: Teaching Old Dogs New Tricks*, 3.

discovery learning process for the student promoting greater long-term retention and understanding of the concept. At a 2006, TRADOC hosted workshop on training innovation, Dr. Robert Bjork, Dean of the School of Psychology at UCLA emphasized this fact by stating:

> When instruction occurs under conditions that are constant and predictable, learning appears to get what we might call contextualized. It looks very good in context, but does not support retention later when tested in other contexts and the learning acquired in the original context does not transfer well to different contexts. In contrast, varying conditions…can enhance recall on a later test. If when trying to learn several things, you intertwine the learning of those things in such a way as to cause interference among them during learning, long-term performance on them will be enhanced. Massing (i.e. cramming) supports short-term performance; whereas spacing (distributed presentations, study attempts, training trials, etc) supports long-term retention.[16]

Dr. Bjork's findings further support the idea that "cramming" for a test, much like a singular focus on accomplishing as many training standards as quickly as possible, fails to support long-term learning whereas learning conditions that engage student more fully promotes long-term learning and understanding.

Recently, these concepts have produced favorable results at the United States Military Academy's Military Science (MS) 300 – Platoon Operations Course, a third year course designed to instruct small unit tactics and leadership, in its efforts to instruct the concept of the OODA loop. Via the use of TDE's, students are guided through multiple scenarios in order to discover the loop on their own. Once they are finally introduced to the concept no formal lecture is really required because the students have already grasped

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[16] Bjork, Dr. Robert, "How We Learn Versus How We Think We Learn: Implications for the Organization of Army Training", unpublished briefing presented at Science of Learning Workshop, Los Angeles, CA: UCLA, 1 August 2006. Quoted in Donald E. Vandergriff, "When Do We Teach the Basics", *Joint Forces Quarterly*, Issue 58, (3rd Quarter, 2010), 5.

the concept due to the fact they had been utilizing it previously, albeit unknowingly. With this baseline established, instructors are able to inject points of friction and disruptions into progressively harder and more complex scenarios. This allows instructors to better assess a student's comprehension of the concepts as TDE's, by their nature, can have multiple solutions. These injects of friction and uncertainty also have the added benefit of reinforcing the idea that flexible, adequate solutions are preferable to rigid, but "perfect" solutions, thus promoting and developing adaptability. As stated by the Course Director, Major Chad Foster, USA, "…the implementation of ALM has been the best thing to happen to our program during my time here as an instructor. In just a few weeks, I felt I was able to get my cadets to a level beyond that which I was able to achieve over several months during previous semesters."[17]

However, TDE's, STX's and a focus on outcomes alone will not produce effective small unit leaders. Central to the successful implementation of OBTE principles and ALM training are highly qualified and motivated instructors who are empowered to employ the training resources they are given as needed to achieve stated course outcomes and objectives. Although, it is not enough to just "assign" an OBTE or ALM instructor, as is the current manning policy for most service's instructor positions. Rather, OBTE and ALM instructors must be developed as further stated by Major Foster, "ALM works, but it takes the right kind of instructor. Gone are the days when you could just "plug-in" any officer or NCO into a teaching position. Teaching in a course that applies ALM requires a high level of passion and competence."[18]

[17] Vandergriff, *When Do We Teach the Basics?*, 72.
[18] Ibid, 73.

AWG's OBTE Integration Workshop echoed this concern citing that instructors in a majority of Army schoolhouses lack the responsibility and accountability for adapting their courses to meet the students' need. This is also the case in a great number of Marine Corps schoolhouses as well.[19] This lack of authority is a direct result of the rigidity and prescriptive nature of the SATs process. As discussed previously, a key element of SATs is to align, and therefore justify, resources for efficient and effective training. While strictly adhering to the course objectives laid out in the POI might be efficient from a resourcing perspective, it does not ensure effectiveness due in large part to the rapidly changing nature of current operating environments and the controlling nature of the Services' training bureaucracies.

For OBTE and ALM to succeed two things must happen. First, introduce OBTE and ALM through experience by sending instructors through instructor development courses taught using an outcome-based training philosophy. Second, give instructors the autonomy and responsibility to make changes to their courses as they determine necessary to meet the needs of their students and achieve stated course outcomes. One means of doing this and not "breaking the bank" from an efficiency perspective is to delink training resources from the course plan by giving the instructor a predetermined amount of time, money, and facilities, but not dictating their use. While requiring a great deal of trust on the part of senior leaders, this creates instructor "ownership" of the course

[19] Authors personal observations while serving as the Commanding Officer, Advanced Infantry Training Battalion from June 2007 to June 2009 with responsibility for 26 separate infantry leader development programs of instruction.

while at the same time improving organizational adaptability and producing better trained leaders.[20]

In the end, the West Point example is just one of many demonstrating the value of OBTE and ALM. Recently implemented in the Army's Basic Officer Leader Courses (BOLC) and Noncommissioned Officer Academies (NCOA), OBTE and ALM received glowing praise and been credited for the ability to assist instructors in developing adaptive and intuitive small unit leaders armed with the tangible skills and intangible attributes to succeed in IW.[21] These promising results are a clear indication that OBTE and ALM, when properly resourced with the right mix of instructors, are the right instructional methodologies for developing small unit leaders capable of succeeding in IW.

Immersive Training Environments

In a December 2009 speech to industry leaders at Interservice/Industry Simulation Training and Education Conference (I/ITSEC), GEN James N. Mattis, USMC, then the Commander of U.S. Joint Forces Command and now the Commander of U.S. Central Command, made a heartfelt appeal for simulation and immersive training tools specifically tailored for small unit leaders when he said, "*Today*, *Now*, we need robust, immersive three dimensional, synthetic training environments providing 360 degrees of horizontal and vertical stimuli. These simulated environments must provide the feel,

[20] McDaniel, *OBTE Integration Workshop-Final Report*, 12-15.
[21] Vandergriff, *When Do We Teach the Basics?*, 69-74.

temperature, humidity, smell, and taste of the battlefield. This is key to expediting our small unit leader's decision-making abilities – tactical and ethical."[22]

Commonly referred to as simulators or simulation, the concept and application of immersive training is not new to the military. It has been used for decades now to assist in the training of pilots, sailors, submariners, and armored tank crews improving performance, reducing training costs while simultaneously raising standards, and ultimately saving lives. What has allowed simulation to be easily adapted to these military specialties is that for the most part simulation engineers are applying the known and unchanging laws of physics and engineering to simulate an engine failure or driving a piece of equipment. The requirements for simulation modeling are quite different for a small unit leader in an IW setting when having to account for the nuances of culture and the ambiguity of human nature.

With that said, recent advances in the use of avatars, smell generators, lighting, temperature control, motion tracking video, sub-caliber munitions, trained role players, and cultural experts, immersive training environments are now reaching the ability to create the emotional memory links critical to developing intuition and better enabling Recognition Primed Decision-making. In the past, what truly separated seniors from subordinates was the vast amount of real-world experience the senior had over the subordinate. Simulation can now take experiential learning to a completely new level allowing for the rapid development and creation of realistic experiences. This "compressed" experiential learning and training is critical to developing small unit

[22] GEN James N. Mattis, USMC, Remarks given at the Interservice/Industry Simulation Training and Education Conference (I/ITSEC), Orlando, FL, 2 December, 2009.

leaders capable of employing assets and operating with the autonomy previously only afforded much older and experienced leaders. The goal is the creation of a vast "data-base" of experiences that can be recalled and leveraged to assist in time-sensitive decision-making.

Now with immersive training venues employing a mix of virtual, mixed and augmented reality simulations, small unit leaders are able to experience the sights, sounds, and smells of their future operating areas before they ever depart for overseas.[23] Much like simulation revolutionized training for aviators, submariners, and tankers, simulators are now able to rapidly generate a multitude of scenarios and experiences with the realism to create the fear, anxiety, frustration, exhaustion, and euphoria that occurs in combat. This allows small unit leaders to experiment in the application of their judgment, intuition, and decision-making without the fear of death or mission failure. Ultimately, this helps to create innovative and adaptive small unit leaders.

The first real effort at developing a comprehensive immersive training environment for small unit leaders is the Marine Corps' Infantry Immersion Trainer (IIT). The IIT is a mixed reality training facility located in a 32,000-square-foot former tomato packing plant in Marine Corps Base Camp Pendleton, California. Incorporating over 10 years of research, the IIT was built by the Office of Naval Research at the request of then LtGen Mattis while serving as the Commanding General, I Marine Expeditionary Force

[23]**Virtual reality (VR)** is a term that applies to computer-simulated environments that can simulate physical presence in places in the real world, as well as in imaginary worlds. **Mixed reality (MR)** refers to the merging of real and virtual worlds to produce new environments and visualizations where physical and digital objects co-exist and interact in real time. **Augmented reality (AR)** is a term for a live direct or an indirect view of a physical, real-world environment whose elements are augmented by computer-generated sensory input, such as sound or graphics.

(MEF) as a way to inoculate Marine infantrymen with the chaotic environment experienced in close quarters urban warfare.[24]

Operational since November 2007, the interior of the warehouse has been transformed to resemble a Middle Eastern town through the use of movie-like sets, and special effects such as projections, pyrotechnics, sounds, and smells. Special Effects Small Arms Marking System (SESAMS), computer-generated avatars, and other technologies combine with real sets and objects to create a combination of the virtual and live worlds that allows the Marines to go through the training scenarios wearing their standard combat gear.

This combination of live and virtual training is what makes the IIT an example of immersive training. Designed to be a decision house for small unit leaders, it focuses on increasing unit tempo via an increase of the individual leader and unit's OODA loops. The facility also assists with stress inoculation by putting Marines into multiple situations that in turn replicate the stressors and physiological responses faced in combat, thus building the individual's stress-immune system.[25] During a visit to the IIT, Chairman, Joint Chiefs of Staff, Admiral Mike Mullen, said, "It's a reminder of what simulation can do. It certainly is great preparation for the Marines as they prepare to go to Iraq. Very impressive, very realistic and in the end hopefully, will contribute significantly to a better way to execute the mission and save lives."[26]

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[24] Pete Muller, CDR Dylan Schmorrow, and Tom Buscemi. "The Infantry Immersion Trainer--Today's Holodeck," *Marine Corps Gazette*, (September 2008), 23.

[25] Ibid, 23-25

[26] Colin Babb, "ONR Demonstrates Revolutionary Infantry Immersion Trainer to Joint Chiefs Chairman", 2008 linked from *Office of Naval Research Homepage* at "2008 Press Releases,"

Having recognized the huge potential gains immersive training can have on small unit leader development and decision-making, the Future Immersive Training Environment (FITE), Joint Capabilities Technology Demonstration (JCTD) received $36 million in funding to research and test future immersive training systems. This two-year program, sponsored by U.S. Joint Forces Command, began in 2008 and recently concluded in November 2010. The program was highlighted by two major training demonstrations. The first demonstration, conducted at Camp Lejeune, NC and Fort Benning, GA in early 2010, focused on the use of Individual Worn Virtual Reality (IWVR) systems. The virtual environment is generated by the use of individually worn Virtual Battlespace 2 (VBS2) equipment comprised of a head worn display (HWD), headphones, body-worn computer, networked instrumentation, and an integrated weapon. Capable of training up to a squad sized unit at one time, team members operate in a realistic virtual world displayed in their HWD. [27]

The second demonstration, conducted at the Camp Pendleton IIT in late 2010, focused on the use of mixed and augmented reality systems. Added to the IIT was ultra-wide band tracking technology allowing for the identification and location of all trainees and role players. Pan-tilt-zoom cameras were installed to automatically record critical events to support after action reviews and training feedback. Theme park like animatronics provide background characters and critical environmental clues. Previously used avatars have been improved by increasing their level of interaction with trainees and the avatars own "situational awareness". While the official results of the demonstrations

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http://www.onr.navy.mil/Media-Center/Press-Releases/2008/Demonstrates-Revolutionary-Infantry-Immersion.aspx (accessed 21 February 2011).

[27] Clarke Lethin and Pete Muller, "Future Immersive Training: Improving Decision-Making Training for All Rank", *Warfighter Enhancement Activities*, Vol 4, Issue 1 (Summer 2010), 2-3.

and the FITE (JCTD) in total have not been published yet, initial reports are very favorable as to the positive impact the technology had on small unit leader development and the interest the Army, Marine Corps, and Special Operations Command have in pursuing funding for these systems. [28]

At this point it is quite evident that immersive training can and must play an increasingly important role in the development of small unit leaders. Like society at large, the U.S. military is transitioning from an analog to a digital culture, however many of its training techniques and technologies have yet to make the change. The military's recent members and those in the recruiting pipeline are "digital natives". Raised on a diet of X-Box and Play Station 360, they expect a training environment that is multi-media rich with learning and communication technologies. As stated in the DOD's Strategic Training Plan, "This environment must be technologically intuitive, agile, and accessible. The long-term objective is to produce an immersive training environment that stimulates cognition, intuition, innovation, and adaptive thinking, and hones complex decision-making skills."[29] This initiative is critical as GEN Mattis concluded in his remarks at I/ITEC conference, "…without better immersive training for our ground units, we will find ourselves dominant in the conventional realm yet irrelevant to the changed threat of IW."[30]

[28] Ibid. 3-4.

[29] Office of the Under Secretary of Defense (P&R), *Strategic Plan for the Next Generation of Training for the Department of Defense*, 6.

[30] Mattis, I/ITSEC Conference Remarks, 2 December, 2009.

CHAPTER 6: CONCLUSION

The world is a complex place and that complexity will only continue to increase. Recent global events like the political upheavals in Tunisia, Egypt, and Libya; continued attractiveness of radical Islam; unexpected natural disasters like those in Haiti and Japan; and the undeniable reality of climate change will only help to ensure this fact. Concurrent with this is the fact that warfare will continue to evolve. This evolutionary path will continue to be one of decentralized control where greater responsibilities and capabilities are pushed to smaller and smaller tactical units that possess the ability to respond to a wide range of threats. Thus, key decision making responsibilities that have strategic consequences are, and will continue, to take place at lower levels. Small unit leaders are now responsible for complex decision-making. They must act based upon broad understanding rather than following rote procedures. This will require small unit leaders who are more adaptive, intuitive, decisive, situationally aware and environmentally informed than the military's current training and education system produces. This sentiment was echoed by GEN Martin E. Dempsey, USA, TRADOC Commander and nominee to be the next Chief of Staff of Army in October 2009 when he said, "We have to develop leaders who understand that context matters. The complexity of today's challenges and the uncertainties of tomorrow require a much broader approach to leader development and a clear understanding of the operating environment."[1] The intent here is not to make general purpose forces into special forces, but to recognize that the general purpose force small unit leader and his unit are critical players on an

[1] GEN Martin E. Dempsey, USA, Remarks given at the Association of the United States Army's Chapter President's Dinner, Washington, DC, 4 October 2009. Quoted in Donald E. Vandergriff, "When Do We Teach the Basics", *Joint Forces Quarterly*, Issue 58, (3rd Quarter, 2010), 69.

increasingly decentralized and dispersed battlefield necessitating a greater investment in their education and professional development.

Investing Wisely

With forecasted budget and manpower cutbacks looming coupled with the ever increasing complexity of IW, it is imperative that the U.S. military adopt a new education and training paradigm specifically tailored to develop the small unit leaders detailed above. While the current Systems Approach to Training model with its emphasis on standards based training and results has served the military well in dealing with industrialized, conventional threats, it is not well suited in its present form for developing small unit leaders proficient at countering IW threats.

Ultimately, the development of adaptive leaders requires their institutions to be adaptive as well. It is time now for the U.S military to adapt its training paradigm to one incorporating and more closely resembling that proposed in this paper. Unlike previous conflicts and adversaries, the U.S. will no longer be able to "spend", "shoot" or "muscle" its way to success. Rather, the U.S. military will have to "think" its way to success requiring it to invest wisely in its most precious and capable resources, its people.

Using the Cynefin model as a guide, the over-arching vision of small unit leader development is the creation of a training and education system that densely packs the "known" domain with as much useable knowledge and experience. By doing this, small unit leaders are empowered to act both intuitively and decisively due to their familiarity with their surroundings and situation while at the same time comfortable operating in

uncertain and complex environments. With this in mind, the following recommendations are proposed.

First, institutionalize the principals of OBTE and ALM into all formal leader development courses from the squad leader level and above. Second, more fully integrate historical case studies, cultural awareness training, and language training into all leader development courses. Third, reinforce this instruction with critical thinking skills focused on developing a questioning mind that at the same time is aware of its own biases. Fourth, integrate combat profiling skills such as the Combat Hunter program, starting at the basic training level, in order to provide the skills and confidence for small unit leaders to better operate in, and among, the "human terrain" that is IW. Fifth, continue to invest heavily in immersive training venues and equipment. Make their use mandatory for all leader development courses from the squad level and up and integrate immersive training into all service directed force generation, pre-deployment training programs. Lastly, focus all decision-making skills and development at the company level and below on intuitive, Recognition Primed Decision-making models; reinforce this with exposure to basic concepts of complexity theory, like those found in the Cynefin model, in order to create a better understanding of when intuitive and analytical decision-making is best.

Ultimately, the world is a very "Darwinian" place where the reality of "adapt or die" is alive and well and is just as applicable to the U.S. military today as it was to any now extinct species. If the United States is to stay on the right side of evolution, it must develop adaptive, intuitive leaders at the small unit level. By adopting the recommendations proposed in this paper, the U.S. military can develop the type of small

unit leader envisioned by General Mattis; "A 'cognitive' warrior [who] knows how to acquire knowledge, process information from multiple sources, and make timely, accurate decisions in complex, ethically challenging and ever-changing environments."[2] A "cognitive warrior" is the ultimate smart power weapon and the wisest investment our nation can make to best prepare itself for the anticipated and unexpected challenges that await it.

[2] Mattis, *Statement Before the House Armed Services Committee*, 19.

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VITA

PERSONAL INFORMATION

Name: Christopher D. Gideons

christopher.gideons@ndu.edu

Current Position: Student, Joint Advanced Warfighting School, Joint Forces Staff College, Norfolk, VA.

ACADEMIC BACKGROUND

In-ProgressMasters Degree in Joint Campaign Planning and Strategy, Joint Advanced Warfighting School, Joint Forces Staff College, Norfolk, VA

2007	Master Degree in Military Operational Art and Science, Marine Corps Command and Staff College, Marine Corps University, MCB Quantico, VA (Distinguished Graduate)

2005 Marine Corps Command and Staff College (Correspondence)

1999	Amphibious Warfare School, Marine Corps University, MCB Quantico, VA
1991	Bachelor of Arts Degree in History with a Minor in English and International Studies, Virginia Military Institute, Lexington, VA (Distinguished Graduate)

CAREER HISTORY

Lieutenant Colonel, United States Marine Corps

Jul10-pesent	- Student, Joint Advanced Warfighting School, Joint Forces Staff College, Norfolk, VA
Jun 09-Jul 10	- Military Transition Team (MiTT) Chief, 26th Iraqi BDE, USD-N, USF-I. (Deployment)
Jun 07-Jun 09	- Inaugural Commanding Officer, Advanced Infantry Training BN, School of Infantry-West, Camp Pendleton, CA
Jul 06-Jun 07	- Student, Marine Corps Command and Staff College, MCB Quantico, VA
Jul 03-Jul 06	- Commanding Officer, Marine Corps Recruiting Station Cleveland, OH
May 01-Jul 03	- Operations Officer, 3rd Battalion, 1st Marines, 1st MARDIV, Camp Pendleton, CA (Multiple Deployments)
Jun 99-May 01	- Commanding Officer, India Company, 3rd Battalion, 1st Marines, 1st MARDIV, Camp Pendleton, CA. (Deployment)
Aug 98-May 99	- Student, Amphibious Warfare School, Marine Corps University, MCB Quantico, VA

Jun 95-Jul 98	- Platoon Commander, Fleet Antiterrorism Security Team Company, Marine Corps Security Force Battalion, Norfolk, VA. (Multiple Deployments)
Jun 93-Jun 95	- Platoon Commander, Charlie Company, 1st Light Armored Reconnaissance Battalion, 1st MARDIV, Camp Pendleton, CA. (Deployment)
Mar 92-Jun 93	-Platoon Commander, Fox Company, 2nd Battalion, 9th Marines, 1st MARDIV, Camp Pendleton, CA (Deployment)
May 91-Mar 92	-Student, The Basic School and Infantry Officers Course, Marine Corps University, MCB Quantico, VA.

Published Works

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